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The Rise, Progress and Influence of the "Scientific American."

We spread before our readers, in this issue, several illustrations, accompanied by somewhat voluminous details of the rise and progress of the SCIENTIFIC AMERICAN, and also of the American & European Patent Agency Offices connected therewith. We think there are few of our readers, whatever may be their occupations or tastes who will not find in these details something of interest and profit. There has been a question in the minds of some, as to the propriety of connecting these two departments of business in one establishment. This doubt will be dispelled at once, when it is considered that they very naturally unite themselves. In thus combining two professions, we were but imitating the practice of English and other European scientific journalists—for example, in England, *Newton's London Journal of Arts and Sciences*, the *Repertory of Patents*, the *Mechanics' Magazine*, the *Artizan*, &c.; and in Paris, *L'Invention* (by the late lamented M. Gardissal), *Le Genie Industriel*, &c., all of which are under the care of editors who are well known to be the ablest and most reliable patent-solicitors in Europe. If the scientific journalist is industrious, and at all competent to the discharge of his duties, his researches into the various fields of scientific literature and of mechanical art and invention are necessarily more extended than those of any other person; and hence his greater familiarity with "things new and old" in these branches.

In narrating the history of the SCIENTIFIC AMERICAN, we shall be compelled to refer more or less to ourselves, but we shall endeavor to do so in a manner not offensive to good taste. Our time, our talents, our energies, and our capital, for fourteen years past, have all been unceasingly devoted to the building-up of an establishment which has become almost, as it were, one of the fixed institutions of the country. We will not attempt to conceal the fact that we have an honest pride in contemplating the results of our labors—a pride which is equivalent to that which the patriot has towards his country, the father in the well-being of his children, and the right-minded ruler in the success of all good schemes for the prosperity and improvement of the people placed under his care.

Our reflections naturally revert to Volume I. of the SCIENTIFIC AMERICAN. On the 28th day of August, 1845, there issued from a little "7 by 9" office, No. 11 Spruce-street (within a stone's throw of where we are now sitting), the first number of what was destined to be an important feature in American literature, namely, a popular and enduring scientific journal. It was a folio sheet, 20 inches by 15, and in making its modest bow to the public, its first column contained a scientific rhyme running thus:—

> "*Attraction* is a curious power
> That none can understand;
> Its influence is everywhere—
> In water, air, and land.
> It keeps the earth compact and tight,
> As though strong bolts were through it.
> And, what is more mysterious yet,
> It binds us mortals to it!"

Rufus Porter was the founder and first editor of the SCIENTIFIC AMERICAN; he was a man of eccentricity of genius, and by no means destitute of qualities of originality, as the contents of the first volume of this journal will abundantly testify. Most of the illustrations of *peculiarly unique* inventions, and the theological discussions that appeared weekly under the pictorial heading of "The Ark," prove that he was not only a man of science but also a christian philosopher. But he was evidently designed for another epoch, and he retired long ago from the editorial chair; and when last we heard from him, he was engaged in the great and laudable enterprise of getting up a joint-stock company to build an aerial chariot according to a plan illustrated in

VIEW OF THE "SCIENTIFIC AMERICAN" OFFICE, NEW YORK.

Volume I., No. 4, having the shape of a revoloidal spindle or, in other words, a *winged* Winan's steamer.

The engraving on the first page of Vol. I., illustrates an improved railroad-car which, although well executed for that time, now looks rather coarse by the side of those which now adorn our pages. A picture and description of the *Great Britain* steamship (the *Leviathan* of her day) and many interesting articles and items fill up the remainder of the paper. The editor, in his first public address, sets forth in plain terms the intention and purpose of the journal. He says:—"We have made arrangements to furnish the intelligent and liberal working men, and those who delight in those beauties of nature which consist in laws of mechanics, chemistry and other branches of Natural Philosophy, with a paper that will instruct while it diverts or amuses them, and which will retain its excellence and value when political and ordinary newspapers are thrown aside and forgotten. In conducting this publication we shall endeavor to avoid all expressions of sentiment, on any sectional, sectarian or political party subject; but we shall exercise a full share of independence in the occasional exposure of ignorance and knavery." This was the standard the present editors were pledged to follow; and we think that one grand element of our present success is owing to the fact that, throughout thirteen years and a half, we have earnestly striven to preserve that pledge inviolate. "Come good report or ill report," our course has been onward; telling plainly our honest convictions and giving our reasons therefor; none being more ready to confess their errors than ourselves whenever convinced that we were in the wrong. When the paper arrived at the age of forty-five weeks (the office having just previously been removed to No. 128 Fulton-street), it passed entirely under the control of its present editors; and the name of "Munn & Company" first appeared in the imprint. At this time it had *less than three hundred* paying subscribers. Thus during the whole of the first year its progress had been very slow; but at the close of the volume, the skies seemed to brighten somewhat, and we felt encouraged to enlarge the paper and to commence a new volume in its present "quarto" form. The illustrations improved in excellence; and as we grew better acquainted with the tastes of our readers, we were better able to supply them with a scientific dish more palatable and digestible. Before the close of the second volume the inventive genius of the country begun rather to concentrate its confidence in our humble office; so much so that, on page 369 of that volume, we published a very modest announcement that we would undertake the preparation of specifications and drawings and otherwise attend to the prosecuting of applications for Letters Patent. This notice laid the foundation of

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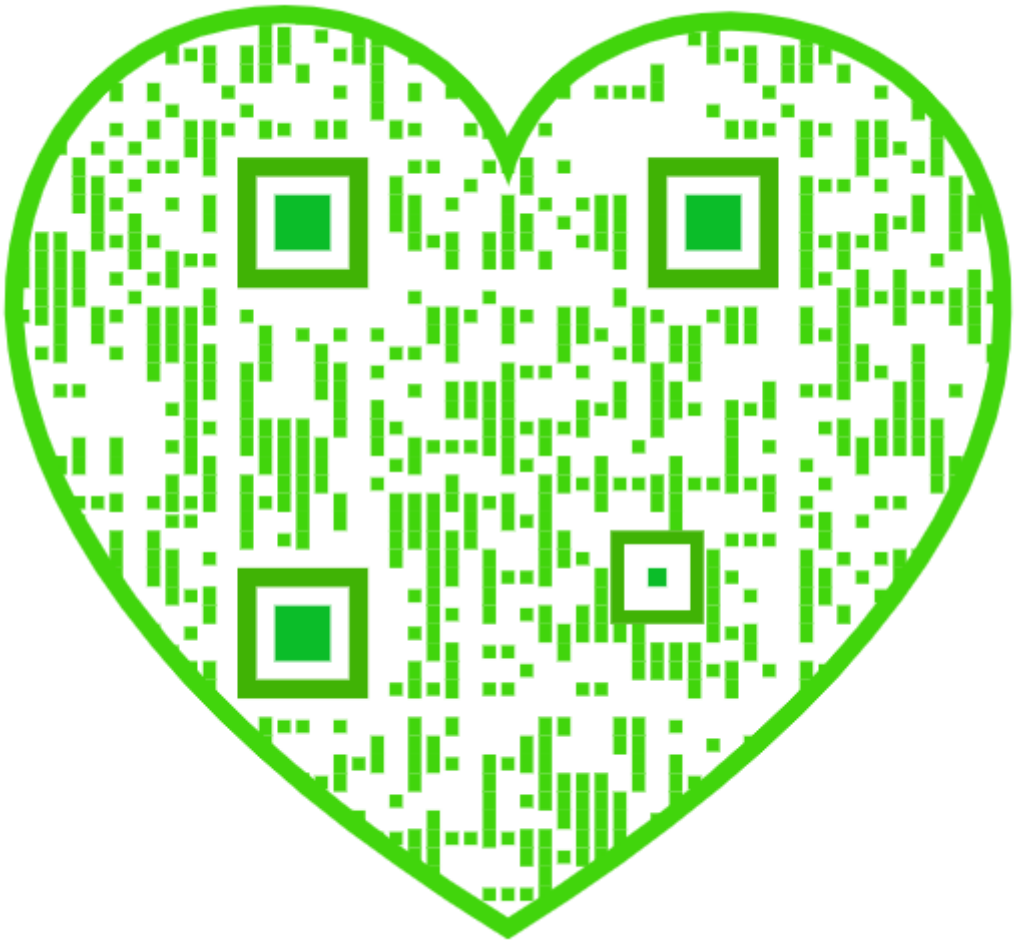

the Scientific American Patent Agency, which now has branch offices in New York, Washington, London, Paris and Brussels. In reference to this particular department, its success will be made to more fully appear hereinafter, as well as in the article entitled "Stubborn Facts," which will be found in another column.

We consider it pertinent to enquire, here, what has been the influence of the SCIENTIFIC AMERICAN upon the arts and sciences? The fact cannot be ignored that it has done essential service in these interesting fields of exploration—these exhaustless mines for human research; for, from its origin up to the present moment, its career has been marked by a most rapid development of our national resources, a vast increase in the number and value of inventions, and a wonderful advance in mechanics, chemistry and all branches of industry. Apart from presenting any facts in support of such statements, it is self-evident that a periodical devoted to the dissemination of information on peculiar subjects must excite the minds of its readers and stimulate them to perform actions which they never otherwise would have contemplated. That such has been the influence of the SCIENTIFIC AMERICAN is beyond all question; many new and useful inventions, and which have become permanently important to our country, were nourished into existence by its teachings. Take for example, sewing machines, which have now become articles of both public and domestic usefulness throughout our whole wide-spread dominion, and they are now being manufactured and sold at the rate of at least 1500 weekly; and yet, in 1846, there was not a single one in operation anywhere. In that year, Mr. Elias Howe, Jr., obtained the patent for his combined needle and shuttle machine; but the public were generally oblivious of the fact until the subsequent year, when one of the editors of this paper hunted up the invention, described it, and directed public attention to the extended field opened for its application. This was the means of awakening a general interest in regard to its importance (for Mr. Howe did little to bring it into notice), and the consequence was, the minds of inventors were excited with the subject, and the latent genius of Wilson, Singer and others was thus stimulated and developed to the splendid results which have since been accomplished. We could particularize other important inventions which have had a history nearly similar but space requires us to be more general.

When the SCIENTIFIC AMERICAN was first issued, agricultural machinery was in a very low condition, and very unfavorable comparisons were made between the paucity of inventions of this class and those for manufacturing purposes. We directed special attention to this fact, and the result has been a most wonderful development in this department. A thousand reaping-machines are sold to-day for one in 1848; while hand-planters and several other entirely new machines have come into general use. No less than 561 patents were issued last year for agricultural implements, and for the number and superiority of such improvements we now surpass all other nations. It is also a pleasing fact to state that many very large fortunes have been made out of this branch of invention; the field being still inviting and prospectively increasing in importance.

The electrotyping art—so beautiful, and now so extensively practiced—was almost unknown to our people twelve years ago. It was first brought prominently to their notice by a series of illustrated articles on the subject, from the pen of one of the present editors of this paper, published in Vol. III.

Gutta-percha, now so much used for tubing, clothing, covering wires, and a hundred other useful applications, was not employed for any purpose whatever in the United States in 1846. We early became acquainted with its qualities, and published such information as, we believe, has much contributed to its general introduction.

In the year in which the SCIENTIFIC AMERICAN had its birth, there were only 900 miles of telegraph line in operation in our whole continent: now there are more than 30,000. We published much original information regarding the principles and instruments for communicating intelligence by this wonderful system, and were its early advocates.

In the same year there were only 4,870 miles of railroad in operation: now there are 28,238. Nearly all the most valuable inventions for railroads have been illustrated in our columns and a number of reforms now adopted for their better management were first discussed in this journal.

Several very great improvements have been made in hydraulic meters; and the compact economical turbine-wheel has superseded, in hundreds of instances, the old and expensive "overshot." Our series of illustrated articles on this branch of practical science, in Vol. VI., has tended greatly to produce this result.

Again: in the year 1846 we had only two small steamers in connection with our ocean service: now we have over forty, each of which is of such magnitude that it could almost stow away any of the older ones within its coal-bunker. The SCIENTIFIC AMERICAN has long asserted that there here exists a vast field for investigation and improvement; our steam marine is but in its infancy, and there are loud demands for more economical apparatus for supplying the motive power.

In 1846 there were only 619 patents issued; in 1858 there were 3,710—a six-fold increase—a result which we know is due, in a great measure, to the topics discussed by us, and the hints we have thrown out touching the wants of the community.

Time would fail us if we attempted to crowd our experience of the past fourteen years into that amount of space to which we must confine ourselves; suffice it to say that there is not a branch of mechanics, engineering, or the useful arts, but has been improved and benefited by the influence of the SCIENTIFIC AMERICAN ever since it was first published. It has breathed upon the "still waters" of many minds, and they have been stirred to impart utilitarian influences; it has awakened emotions which otherwise would have been slumbering still; and these have gone forth carrying improvement after improvement into every corner of our land.

In reference to the present influence and circulation of the SCIENTIFIC AMERICAN, it is almost needless for us to say that it is marked and extensive. Its progress in popular favor has been steady and solid, unlike that of many journals of a light literary caste, which have come and gone like the comet. A distinguished European *savant*, in speaking of our paper, characterized it as "a magnificent illustrated panorama of the industry of both hemispheres;" and in his own journal he further said:—"*Savans*, manufacturers, inventors, and all persons who, from any title, are interested in the progress of the arts and sciences, have been engaged to contribute to it. This publication is a mirror wherein is reflected all the attempts, all the endeavors, all the experiences, all the results of modern inventions. The *savant* can here find the steps which genius makes each day in the paths of science. The manufacturer draws thence perfections of art, which must modify constantly the conditions of labor. The inventor there beholds clearly the discoveries already made, and is spared from useless researches and labors. The merchant, too, finds there precious documents; the public, in short, learns each week what is new in the universe of arts and industry. England has many similar publications, but *no journal in the three nations* has obtained or merits the immense success which has made the fortune and glory of the SCIENTIFIC AMERICAN."

Our Patent Agency Department.

One of the most interesting and attractive institutions in connection with our government is the United States Patent Office, located at Washington; it is the storehouse and monument of the ingenuity of our countrymen, and no intelligent person would think of visiting that city without making at least one visit to that department.

The Constitution of the United States makes special provision for the protection of the rights of inventors and authors; and under its fostering care there has grown out our present almost inimitable patent law system. It is needless, here, to describe that system, as it is more fully elaborated elsewhere. Suffice it to say that, in consequence of the rigid system of examination preliminary to the issue of a patent, the conflicting interests constantly coming under the supervision of the Office, the paramount value of many of the inventions for which patents are sought, and the great necessity that the papers of the claimant should be carefully prepared, there has grown up a profession, as it were, the members of which are usually designated "patent agents" or "patent solicitors," and who have become as much a necessity for the proper transaction of business with the Patent Office as the lawyers are in our courts of justice. We are sorry also to add that in this, as in the legal profession, there are "shysters" and "suckers," who, vulture-like, watch for an inventor, mainly for the purpose of despoiling him of his honest rights and oftimes scanty means. These persons have no professional reputation, and only eke out a livelihood by a low craftiness which, to the eyes of strangers, has in some measure thrown discredit upon honorable men engaged in the business, of which there are many.

We will here state, in reference to ourselves, what no one will presume to deny, that since our first connection with the SCIENTIFIC AMERICAN, in 1846, we have examined into the novelty of more inventions than any other patent agents now living in this country. During all this time, we have never engaged in speculating in patent rights, but have made it a rule to discharge instantly from our employment any-one who might engage in such speculations; and we are able to state that we have never had any necessity to enforce this rule, although some of our *employés* have been with us since we started in business. It is a difficult thing for persons unacquainted with our methods, to understand how we are able to transact so large a business, and with such great success. Rapidity, executive tact, and close application to business, are often mysteries which slow people cannot understand. Alexander T. Stewart, the most successful merchant in the United States, if not in the whole world, and doing a business of ten millions a year, is a mystery to all his competitors. Go and look at him in his mammoth mercantile palace on Broadway. You see an unassuming, delicately-framed man, by no means exhibiting marked evidence of ability; but converse with him a little while about his business, and you will find that no department escapes the scrutiny of his eye.

We will here present a brief account of the manner in which the immense business of this office is transacted. Probably not more than one in every fifty of our patrons ever personally visits our establishment. We often regret that we cannot have a more intimate personal acquaintance with them, as this would enable us to explain the peculiar *modus operandi* of our business, and our clients could also more fully elucidate their ideas in reference to their various improvements, with much more distinctness and intelligibility than can be done by letter; but as a visit is out of the question in most cases, we have prepared and distribute (gratuitously) circulars of instruction how to proceed to procure American & European patents, a careful perusal of which will enable inventors to understand what is required of them in order to present their case in a proper manner. These circulars save us a vast deal of writing, as they fully answer all the leading enquiries that usually present themselves to inventors desiring protection under our patent laws. As will be inferred from the remarks above, our business is mostly transacted through the mails and express. The average number of letters daily received by the office is at least one hundred, and in the busiest seasons of the year—as, for instance, the beginning of a new volume of the SCIENTIFIC AMERICAN—the number has reached as high as three hundred per day. The first business of the morning, on the part of the proprietors, is to open and carefully examine the correspondence. A division is then made of this correspondence, according to its character; that portion pertaining to the business of the journal—such as subscriptions, complaints, changes of address, requests for back numbers, &c.—is referred to the Superintendent of the Subscription and Mailing Department, whose duty it is to faithfully observe and, *if possible*, fulfil every request. There are many little business details in this department which it is unnecessary to specify, but which are important adjuncts to the machinery of the office. Contributions intended for publication, and questions presented for answers in our column headed "Notes & Queries," are all carefully examined and properly disposed of by an accomplished editorial *corps*. Letters accompanied by sketches and descriptions of alleged new inventions are properly classified and then submitted to whoever in the office is most competent by long experience to decide upon their patentability; his opinion is carefully written down on a slip of paper, which is attached to the letter, and this is then handed to one of the principals, whose business it is to scrupulously supervise these opinions and then hand them over to the Corresponding Clerk, who writes a full and proper answer to the correspondent. These replies are examined and signed by one of the firm, and then dispatched to the Post Office. Thus it will be seen that it is almost impossible for a single letter to be passed by unnoticed. Correspondents sometime do not consider that their letters to us or our replies to them might have been miscarried; therefore, once in a while, we get a letter of complaint for not answering some writer with as much promptitude as we had done others. We seldom, however, encounter a correspondent whose impatience cannot be appeased by a proper explanation; *and it is a most significant fact that, out of the thousands of letters annually addressed to us, we rarely receive an uncourteous one.* This of itself assures us that, in our professional intercourse with our patrons, satisfaction is almost invariably given. Like all other publishers we sometimes receive letters from unknown sources, which are usually thrown into our waste basket without examination, because, as a general rule, they are regarded as wholly unreliable and unworthy of attention.

Models of new inventions are usually transmitted to us through the medium of the various expresses of our country, and are delivered to us with a dispatch and care highly creditable to the efficiency of this system of carrying. It is seldom that a model is miscarried, and we cannot remember a single instance in which we lost a model beyond recovery. The expressmen usually begin to deliver their boxes of models about 9 o'clock, A. M.; the models are put into a private room and there opened by a trusty porter, who immediately brings them to the desks of the principals, who speedily attend to their examination and disposal; and in the proper arrangement and preparation of applications for patents on models entrusted to their care, they are assisted by twelve examiners and draughtsmen of approved ability and tried integrity.

All funds remitted to us on account of applications for patents are immediately placed to the credit of the inventor to whose case the money applies; and in every issue of our journal, we acknowledge these weekly receipts by the initials of the sender. This enables our correspondents to quickly detect any detention in the proper reception of their remittances, which are usually not acknowledged by letter until the model reaches us, when the case is considered completed in our hands.

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After the drawings and specification of a case are prepared, they are at once sent to the applicant, for his signature and oath, accompanied by printed directions for their proper execution. On their return to us, they are at once forwarded to the Patent Office; registers of these transactions being kept, to avoid the possibility of mistakes. Many minute details are involved in the careful registration of these applications, all of which are under the supervision of one of the principals.

One very important department of our establishment is that devoted to the procuration of foreign patents; this receives the especial attention of one of the firm, who, from long experience and personal observation in Europe, is qualified to advise on all points relating to this branch of the business. It is believed that over two-thirds of all the patents obtained abroad by American inventors are secured through our European agencies. Correspondence and conversations in the office are conducted by the *attachés* of this department in the French, German and Spanish languages; so that no foreigner need feel embarrassed in consulting or writing to us, even though he may not be familiar with English.

Stubborn Facts.

In another part of this number we have entered quite extensively into a description of the rise and progress of the SCIENTIFIC AMERICAN, and have also made an exposition of our Patent Agency Department, and of the complete system by which this branch is managed. As corroborations of our statement in reference to the unparalleled success which has hitherto attended this division of our professional labors, we here present a few gratifying extracts from letters recently received by us from some of our clients, followed by the testimonials of the two ablest and most popular Commissioners of the Patent Office:—

John Fairclough, of Louisville, Ky., writes: "I received my Letters Patent from the United States Patent Office on Monday. I return you my sincere thanks for getting it through so quick. I think you are friends to inventors—punctual, honorable, responsible men, and I wish you success. If I should have more patent business I shall know it is safe in your hands."

Philander Perry, of Troy, N. Y., writes: "I have to-day received the specification and claims on my invention; and just as some doubts, as to unnecessary delay (a thing that too frequently happens to anxious inventors by patent solicitors who take in cases, and then take their own time to give them attention), began to arise, they were dispelled by the reception of my voluminous papers; thus adding a new obligation of interest and fidelity to you. I say it sincerely and honestly, *the interest of the inventor is yours.* You have exceeded my expectations, both as to the character and also the extent of my claims; by them I feel fully protected. Please find within your very reasonable fee. For this and many other favors receive my ardent gratitude."

Henry Benter, of Wheeling, Va., remarks: "I have forwarded the specification and drawings signed as directed. I return to you my sincere thanks for the very satisfactory and very efficient manner in which you have drawn up the specification and claims for my invention, and I must confess you have earned double the money charged."

Abner L. Butterfield, of West Dummierston, Vt., acknowledging the receipt of his patent, observes: "I received my Letters Patent on January 21. Please accept my sincere thanks for the prompt and expeditious manner in which you have managed my case. I have taken the SCIENTIFIC AMERICAN more than two years, and would not do without it for more than twice the sum I have to pay for it."

E. A. Goodes, of Philadelphia, Pa., says: "I was very agreeably surprised this morning by receiving my papers from the Patent Office. I had no idea of the progress you were making with my case. You have certainly been very expeditious. I did not expect to get the papers for some time yet. Your system must be very perfect to accomplish so much in so short a space of time. I shall take great pleasure in recommending you among all my acquaintances who may have business with the Patent Office. Please accept my most sincere thanks for your services. I do not believe that I could have obtained the patent had I made the application myself or through any other agency."

The next extract is from Edwd. Savage, of Middletown, Conn., one of our oldest and best clients, for whom we have taken out many patents in this country and abroad. He is not only an inventor but a manufacturer of fire-arms; he writes: "I am pleased to acknowledge the receipt of my patent papers. I feel under obligations to you for the dispatch with which you have executed my business heretofore, and doubly so in this instance, as this completes every improvement necessary to make a perfect revolver."

J. L. G. Ward, of Adrian, Mich., writes: "I received my Letters Patent for my first application two or three days ago. I need not say I am well pleased with the obliging courtesy and promptitude which have characterized your exertions for me. While in the eastern States last winter, I visited some other patent agencies, thinking that, as they were less widely known, their fees would be smaller; but I found them to be fifty per cent higher, while their facilities for doing business were many hundred per cent lower. If your modesty will allow, I would be glad to see this published in your columns for the benefit of a host of inventors."

W. S. Kirkham, Secretary of the Squire and Parsons Manufacturing Company, at Branford, Conn., remarks: "On the 16th inst. I received from the Patent Office my Letters Patent on 'Improvement in Locks,' dated March 15. I wish to express my obligation to you for the clearness with which you have described the principles of my claim in the specification, and the promptness with which you have obtained the papers. It fully confirms the reputation of your agency for correctness and dispatch in that business."

D. Wellington, of Boston, Mass., sends us the following: "I have just received your last, and also my Letters Patent from the government; I was truly glad to do so, as (like all the rest of mankind) I always like to meet with success in all my undertakings. At the very onset, however, your well-known reputation for thoroughly presenting all your cases at the Patent Office was a sufficient guarantee that success would certainly crown my application if the case was worthy of it. Please accept my thanks. I shall take pleasure in recommending your firm to persons desiring to secure patents."

We present with much pleasure the following flattering testimonial from the Hon. Judge Mason, who, while Commissioner of Patents, made his mark upon the interests of that office in "lines drawn out in living characters," and who resigned his position very much to the regret of all. It was addressed to us while he was temporarily sojourning at Ballston, N. Y., soon after his retirement from office.

GENTLEMEN:—I take pleasure in stating that while I held the office of Commissioner of Patents, more than one-fourth of all the business of the Office came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers. Yours, very truly,

CHAS. MASON.

Judge Mason was succeeded in that important bureau by the Hon. Joseph Holt, of Kentucky, who was previously but little known beyond the confines of his own State; but who distinguished himself while he held the office of Commisioner of Patents, by his executive ability, inflexible honesty, uniform affability, and keen sympathy for the interests of the inventor. Upon the death of Governor Brown, he was appointed to the important office of Postmaster-General of the United States; and immediately after entering upon his new duties he addressed to us the following pleasing letter.

GENTLEMEN:—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements.

Very respectfully, your obed. servt.,
J. HOLT.

Extension of Patents—Important to the Inventors of 1845.

It is always a matter of more or less difficulty to introduce a new thing, and bring it into the notice and favor of the public. Hence it is that some inventors spend the best portion of their lives in endeavoring to find people who will adopt and employ their inventions. When the summit of this mountain of difficulty is reached, it is down-hill traveling thereafter. The thing moves of itself, and a golden current is often encountered which rapidly fills the coffers of the discouraged patentee. The history of the Woodworth Planing-machine Patent, of Colt's Pistol, of Goodyear's India-Rubber Patent, of Howe's Sewing Machine, and of the Wheeler & Wilson Sewing Machine, are examples in point. Many others might be cited. In these cases it was not until the life of the original patents had more than half expired that the patentees began to reap those golden harvests for which they are now so celebrated; and in some of the cases named, it was not until the extended term of the patents was granted that prosperity dawned upon their possessors.

Hundreds of valuable patents are annually expiring which might readily and legally be extended; and if extended, might prove the source of untold wealth to their fortunate possessors.

How many of the patentees of the year 1845 have become old and infirm, and their families destitute, while the invention of the sire lies dormant, unnoticed and unknown? How many of the patentees of 1845 are dead—gone, never more to return! bequeathing as their only legacy to remaining friends the parchment patent for some invention, perhaps a noble one, which may yet bring wealth and honor to the legatees, and cause the inventor's name to live again?

We are persuaded that very many patents are suffered to expire without any effort at extension, owing to the ignorance of the patentees, their relatives or assigns, as to the current law and the mode of procedure in order to obtain a renewed grant. We shall, therefore, give a few brief hints upon this subject, and close with a list of those persons whose patents will expire during the present year, and whose inventions will become the property of the public unless extended according to law.

The statute of 1836 provides that, when an inventor has failed to receive a sufficient reward for his invention during the existence of the original patent, he may apply to the Commissioner for an extension of the term; and the Commissioner, on the presentation of proper proofs touching the amounts received by the applicant, the value of the invention, &c., is empowered to extend the patent for seven years, so that it will run for a period of *twenty-one years* from its original date. Some of the most valuable grants now existing are *extended patents.*

The proceedings and papers required for an extension are as follows:—

1. Payment of $40 government fee into the Treasury.

2. Filing of petition for extension at least sixty days prior to the expiration of the patent.

3. Appointment of the day of hearing and publication of the application for extension in newspapers selected by the Commissioner.

4. Surrender of the existing patent to the Commissioner.

5. Filing of statement by the patentee, in writing, under oath, of the ascertained value of the invention, with his receipts and expenditures in sufficient detail to exhibit the profit and loss arising from the invention.

6. Statements, under oath, of disinterested witnesses, supporting the petition.

7. Reference of the case to an examining officer.

8. Report of the Examiner to the Commissioner.

9. Hearing before the Commissioner, at which the arguments by counsel on both sides for and against the extension will be heard.

10. Final decision of the Commissioner of Patents.

11. Decree of extension and certificate thereof upon the original patent.

All the documents connected with extensions require to be carefully drawn up and attended to, as any failure, discrepancy or untruth in the proceedings or papers is liable to defeat the application. Applicants for extensions should always place the management of their cases, from first to last, in the hands of faithful and experienced patent attorneys. Ordinary lawyers or agents, who have had no experience in extension cases, should never undertake them.

The government fee in extension cases is $40, as before stated. To this must be added the charges of the attorney who conducts the case, which should be agreed upon beforehand.

In case of the decease of the inventor, his administrator may apply for and receive the extension; but no extension can be applied for or granted to an assignee of an inventor. The inventor or his heir may, under certain circumstances, however, assign his interest in the extension, before it is obtained, so that when granted, the extended patent will revert *to the assignee.*

LIST OF PATENTEES WHOSE PATENTS EXPIRE IN 1859.

[N. B.—The localities assigned to the parties mentioned below were their places of residence at the time their patents were originally granted.]

Anderson, S. Garrettsville, N. Y., hammer, Aug. 20.
Aldrick, Jacob Middletown, Ct., latches for doors, May 24.
Anderson, Alex. Paterson. N. J., spindle steadying, November 21.
*Atwood, Anson, Troy, N. Y., stoves, air-tight, March 26
Allen, Oliver Norwich, Ct., excavator, May 1.
Aylesworth, C. Bainbridge, N. Y, water-wheel, May 16.
Ackerman, G. L. Troy, N. Y., wheels for carriages, April 26.
Andrews, Joseph E. Boston, Mass., planing-machine, November 21.
*Allen, Ethan Norwich, Ct., pistols, April 16.
Allen, John Cincinnati, O., teeth-setting, Dec. 16.
Arrowsmith, Geo. New York, inkstand, October 7.
Arrowsmith, Aug. T. New York, inkstand, Oct. 7.
Arthur, Chas. Keesville, N. Y., grindstones, Aug. 26.
*Andrews, John Bellville, N. J., cloth-felting apparatus, January 31.
*Arndt, Jacob, Wheeling, Va., saw-filing, Feb. 24.
Briggs, Jos. D., Saratoga, N. Y., corn-sheller, June 14.
Burrall, T. D. Geneva, N. Y., corn-sheller, Dec. 6.
*Bennett, James H. East Bennington, Vt., flax-pullers, January 23.
*Ball, Ephraim Greentown, O., plow, Feb. 20.
Bullock, Wm. Jersey City, N. J., plow, July 30.
Ball, John, Greentown, O., plow, November 8.
*Braad, Nathan Leonardsville, N. Y., hoe necks, April 1.
Buttrick, Nathan Chelmsford, Mass., lead pipe machine, November 8.
Ball, Jonathan New York, machine for riveting pipes, December 20.
Brooks, Simeon Chester, Ct., manuf. of screws, Jan. 23.
Blanchard, Israel Troy, N. Y., spike-machine, May 10.
Billings, G. W. Glasgow, Mo, hemp-dressing, Jan. 27.
Billings, G. W. Glasgow, Mo., hemp-dressing, May 1.
*Barnum, Daniel, Bridgeport, Ct., loom power, Mar. 26.
Bigelow, Erastus B. Boston, Mass., loom-power, Apl 10.
Burt, Enoch Manchester, Ct., loom-stop application, June 20.
*Bigelow, E. B. Boston, Mass., loom-temples, Feb. 24.
*Bigelow, E. B. Boston, Mass., loom tension warps, March 12.
Bishop, Wm. Coventry, Ct., paper-machine, Dec. 31.
*Boyd, A. Providence, R. I., printing calico, April 22.
*Bigelow. E. B., Boston, Mass, spider fliers, Feb. 24.
Baxter, William Paterson, N. J., spinning, Sept. 30.
Brundred, Benjamin, Paterson, N. J., throstle for springs, September 9.
Barlow, T. H. Lexington, Ky., hemp preparation, June 25.
Billings, G. W. Glasgow, Mo., hemp rotting, May 10.
Bogardus, James New York, india-rubber thr. May 21.
Bogardus. James New York. shirring machine, May 21.
*Brooks, J. S. O. Kanawha, Va., salt-making, Feb. 12.
Barrow, Eben. New York, furnace, air-heating, Dec. 11.
Blake, William Boston, Mass., gas-burner, Aug. 9.
Beebe, Wm. New York, hot water circul., Dec. 16.
Butcher, W. Philadelphia, Pa., stoves, ash-pit, Nov. 29.
Babcock, Chas. East Haddam, Ct., coal stoves, June 10.
*Black, J. Williamsport, Pa., steam-engine, March 12.
*Bissell, Levi Brooklyn, N. Y., ships' cables, Feb. 28.
Baker, Amon Western, N. Y., gates, April 10.
Bennett, Phineas New York, raising wrecks, Sept. 2.
Bean, Samuel H. Philadelphia, Pa., replacing cars on track, October 11.
Benton, Benj. S. Hartford, Md., hydraulic ram, Dec. 26
*Bullock, W. Jersey City, N. J., cotton-press, Jan. 4.
Bullock, S. W. Williamsburg, N. Y., toggle-joint, Jan. 10.
Bennett, Charles Pepperill, Mass., mortising machine, September 17.
Briggs, John C. Saratoga, N. Y., shoe-peg machine, October 9.
Brown, Benj. Burlington, Vt., planing-machine, Oct. 9.
*Bicknell, Benj. Cincinnati, Ohio, planing-machine, March 21.
Biggs, James New York, tenoning-machine, Nov. 12.

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*Brackett, R. & H. Woburn, Mass., decing and polishing leather, March 15.
Beverly, Charles T. Salem, Ohio, fastening leather straps, January 16.
Briggs, Cornelius Roxbury, Mass., extension-tables, September 9.
Badlam, Edward Potsdam, N. Y., piano-forte, Oct. 25.
Baldamus, C. F. Berlin, Prussia, Anastatic printing, October 25.
Bruce, D. Williamsburg, N. Y., type-casting, June 7.
Bartlett, Nelson Belvidere, Ill., portable-baths, Sept 23.
Baker, J. H. Columbus, Ohio, tooth-extractor, Nov. 8.
Brown, James Newark, N. J., firemens' hats, Nov. 1.
Bogardus, A. Abm. Newburg, N. Y., tailors' measure, November 29
Bliss, J. New York, time-keeper, August 4.
Benteen & Zimmerman, Petersburg, Va., washing-machine, August 26.
Colton, Aaron Pitsfield, Vt., bee-hives, Dec. 31.
Cooley, Anthony Kalamazoo, Mich., winnowing- machine, September 2.
Clay, Wm. N. England, reducing ores, &c., July 5.
*Clark, Wm. N. Chester, Ct., screws, January 2.
Crane, Alanson Lowell, Mass., burring-machine, Oct. 11.
*Cheetham, David Rockdale, England, cotton-roving, March 14.
*Carver, Eleazer Bridgewater, Mass., gin cotton saw, January 4.
Chapman, Isaac L. New York, hat bodies, May 1.
Cunningham, R. P. Abington, Ct., looms, operating shuttle, December 16.
Chase, W. H. Pensacola, Fla., mastic cements, April 16
*Coston, B. F. Washington, D. C., gaslight, Jan. 31.
Cooper, Peter New York, gelatine, June 10.
Cooper, Chas. New York, india-rubber, June 10.
Clark, Edwd, Brooklyn, N. Y., printers' ink, July 5.
Clough, Wm. T. Jersey City, N. J., oil from rosin, April 22.
Campbell, Ethan New York, sugar-making, Oct. 25.
Chilson, Gardner Boston, Mass., hot-air furnaces, Aug 4.
Clute, Peter J. Schenectady, N. Y., stoves, Sept. 19.
Cox, D. B. Troy, N. Y., cooking-stoves, July 22.
Chollar, J. B. Troy, N. Y., cooking-stoves, Nov. 8.
Cochrane, J. W. Attica, N. Y., cooking-stoves, November 12.
Cochrane, John Baltimore, Md., steam-engine, April 16
Cornell, Ezra Ithica, N. Y., telegraph, December 30.
Cornell, Silas Rochester, N. Y., globes, mounting, July 5.
Creighton, F, New York, doors and windows, Sept. 11.
Commings, Robt. Lima, Indiana, excavator, July 14.
*Cross, T. W. Boston, Mass., window-sash, March 21.
Coleman, Ezra Phila., Pa., inclined-plane-, Dec. 31.
Cushman, W. M. C., Albany, N. Y., rails for tracks, January 16.
Craddock, J. T. Baltimore, Md., filters and refrigerators, December 31.
Chapman, Abm. Fort Miller Bridge, N. Y., water-wheel, July 30.
Colt, C. J. New York, cotton and other press, April 22.
*Collins, G. S. Ravenna, O., cheese-press, March 29.
Clark, Wm. N. Chester, Ct., augers, gimblets, Jan. 31.
Coffin, Jas. B. Mohicanville, O., boring-machine, January 20.
Cheney, Saml. Cleveland, O., lath-machine, Sept. 27.
Curtis, F. C. Colombia, S. C., harness-collar, Aug. 4.
Caldwell, Robert Moulevallo, Ala., saddle-springs, May 24.
Close, Geo. C. Port Chester, N. Y., tanning and coloring. April 22.
*Coffman, Geo. A. Middle Brook Va., sausage cutter, February 28.
*Cherry, G. W. Alexandria, D. C., pianoforte, Jan. 16.
Colvin, Ephraim North Granville, N. Y., uterine supporter, August 4.
Cherry, George W. Alexandria, D. C., ventilating hats, July 26.
Cornelius, John D. Westerly, N. Y., scines, knitting, May 10.
*Cobb, Walter Damascoville, Ohio, carriage-brakes, February 12.
*Cadwallader, Evans Pittsburg, Pa., preventing steam explosions, February 24.
Decker, Abraham Walnut Township, Ohio, beehouse, July 30.
Davis, Jane A. Clark County, Ala., cotton-whippers and cleaners, May 16.
Davis, Henry G. Clark County, Ala., cotton-whippers and cleaners, May 16.
Deering, Richd. Senr. Louisville, Ky., hemp-machine, Jan. 10.
Durfee, Chas. Palmyra, N. Y., rope-making, Feb. 28.
*Dixon, Joseph Taunton, Mass., composition for bearings of machinery, January 31.
Deering, Richd. Senr. Louisville, Ky., hemp-machine, June 25.
Day, Horace H. Jersey City, N. J., hose combination, August 16.
Day, H. H. Jersey City, N. J., india-rubber, Jan 6.
Day. Horace H. New York, plaster adhesion, Mar 27.
Davison, J. New York, preparing provisions, Aug. 9.
*De Bretton, J. New Orleans, sugar-making, Mar. 24.
Derosne, Louis C. France, sugar-making, July 10.
Duplessis, Francis Plagueminis, La., sugar boilers, December 16.
Davy, John T. of Troy, N. Y., bakers, February 12.
*Davy John T. Troy, N. Y., cooking-stove, March. 12.
Duff, William Baltimore, Md., spark arrester, Sept. 30.
Davis, James Gloucester, Mass., brooms and saddles, December 26.
Dunning, William, Dunningsville, Pa., carriage-brakes, November 1.
Dripps, Wm. Coatesville, Pa., water-wheel, Nov. 26.
Downs, Amond St. Clair, Mich., sash-machine. Nov. 8.
Dane, James West Derby, Vt., saw-mill carriage, April 22.
*Dexter, J. C. Ionia Mich., stone dressing, March 12
*Davis, Abbot R. Boston, Mass., brushes, March 1.
Draper, W. S. Boston, Mass., pianoforte, June 20.
Eldred, Allen Openheim, N. Y., cultivator, Dec. 20.
Ely, Theo. New York, gin cotton rollers, Dec. 11.
Estes, Coleman C. Maury County, Tenn., hempbrake, July 14.
Ely, Theodore New York, wool-burring and cleaning, May 16.
Edwards, Chas. S. Rushville, Ind., preserving potatoes, December 31.
Ericsson, John New York, screw propeller, Sept. 9.
Ericsson, John New York. steam-engine, Dec. 2.
*Eckson, G. Pittsburg, Pa., propelling boats, Mar. 26.
Echols, Josephus Columbus, Ga., propelling canal-boats, November 26.
*Elgar, John Brookfield, Md., railroads, March 12.
Eddy, G. W. Waterford, N. Y., car-wheels, Dec. 26.
Evered, Joshua Sodus, N. Y., water-wheel, July 30.
*Eckstein, J. Philadelphia, Pa., marble polishing, March 2.
Ellsworth, Erastus W. East Windsor, Ct., drawing instruments. January 7.
Edwards, Lewis Norwich, Ct., ruling-machine, Oct. 9.
Elliott. James Newark, N. J., exercising-machine, September 2.
Ellsworth, Erastus W. East Windsor, Ct., water-ram, Dec. 6,
Farrand, Jehil T. Fort Byron, N. Y., stoves, Aug. 4.
Faber, George Canton, Ohio, water-gage, Nov. 26.
*Fitzgerald, Jesse New York, coffee-mill, Jan. 25.
Freleigh, Ferris Stowe, Ohio, mill-stone, March 26.
Finch, Solomon F. Rootstown, Ohio, lath-machine, August 16.
Farnum, Joel Stillwater, N. Y., pottery-ware, Oct. 26.
Fairchild, Starr Trumbull, Ct., boot crimps, May 10.
Frashure, Kasson Maulins, N. Y., buckles for harness, January 16.
*Frashure, Kasson Maulins, N. Y., buckles for harness, March 25.
Flemming, L. D. Newark, N. J., abdominal supporter, December 31.
Field, Edward Port Chester, N. Y., coloring matter, April 22.
*French, Newell Detroit, Mich. boring-machine, Jan. 23.
Fessenden, Asa Templeton. Mass., match-splints, April 26.
Fairchild, Reub. Trumble, Ct., boot crimps, May 10.
Foster, E. B. Philadelphia, Pa., stencilling, May 13.
*Francis, Jos. New York, sheet-iron boats, March. 26.
Genin, J. N. New York, manufacture of hats, July 22.
Gallagher, Patrick Chambersburg, Pa., plow-clevis, November 26.
Grant, Isaac T. Schaghticott, N. Y., winnowing machine, July 10.
Gilman, Samuel H. Boston, Mass., manufacture of forks, October 16.
*Gardiner, P. G. New York, hemp-breaker, Feb. 28.
Guess, Sol. Boston, Mass., removing grease, Aug. 26.
Goodyear, Nelson Newtown, Ct., india-rubber, April 22.
Goodyear, Nelson Newtown, Ct., india-rubber, May 13.
*Golding, John East Cambridge, Mass., lamps, Jan. 23
Gross, Hy. N. Palatin Bridge, cooking-stoves, May 13.
Grimes, W. C. Baltimore, Md., spark-arrester, Nov. 13.
Grimes, Wm. C. Baltimore, Md., spark-arrester, June 7.
Grimes, William C. Baltimore, Md., spark-arrester. September 23.
Griffiths, T. F. New Market, Md., attaching keels, April 26.
Green, Wm. Jr. Woodbridge, N. J., iron orcs reduced, July 5.
*Gardner, Jas. South Lee, Mass., water-ram, Jan. 16.
Grant, R. C. Pomeroy, Ohio, water-wheel, July 26.
*Gardner, G. P. New York, cotton-press, Feb. 28.
Gross, Daniel New York, cotton-press, April 22.
Goodman. Allen Dana, Mass., turning-lathe, July 22,
Gaunt, Adin Chagrin Falls, Ohio, bedstead-fastening, Oct. 25.
Goulding, W. R. New York. truss double pads, July 5.
*Gibson, D. T. Damascoville, Ohio, carriage-brakes, February 12.
*Hart, Silas New Haven, N. Y., bee-hives, March 26.
Hizer, Henry Wooster, Ohio, clover-mill, June 14.
Harrison, Alvored Blissfield, Mich., cultivator, Sept. 2.
Hall, H. Mansfield, Ohio, plow-wheel, October 7.
Hall, Wm. C. Boston, Mass., locks, October 16.
*Huntington, John Zanesville, Ohio, metallic cones, February 24.
Hovey, Wm. Worcester, Mass, grinding tools, Sept. 23.
Howe, J. J. Derby, Ct., wire-machine, Dec. 26.
*Harrison, Jno. Glasgow, Mo., hemp breaking, Jan 7.
Harrison, Jno. Glasgow, Mo., hemp-breaking, May 1.
Hare, Robert Philadelphia, Pa., blow-pipes, July 5.
*Hill, J. S. Boston, Mass., composition for machinery, January 31.
Harrison, John Glasgow, Mo., hemp-rotting, May 10.
Helm, J. New Brunswick, N. J., india-rubber threads, June 7.
Haman, Aug. Washington, D. C., chimney smoking, July 22.
Heddemburg, F. L. New York, stoves, May 7,
Huntley, Hosea Rochester, N. Y., stoves, August 9.
Hubbell, Horatio Moyamensing, Pa., propeller, July 14.
*Howel, Samuel Arcadia, N. Y., propeller submerged, Jan. 14.
Hood, Andw. New York, gates and gateways, Dec. 16.
Hosmer, Arnold Bath, Ohio, carriage-bodies, June 2.
Hemming, Richd. Boston, Mass., links for cars, Oct. 11.
Hinckley, Holmes Boston, connecting driving wheels, April 1.
*Haw, John Hanover County, Va., horse-power, Mar. 15.
Harris, F. W. Lancaster, Mass., sawing irregular forms, Sept. 27.
Harrington, David German Flats, N. Y., boot lasting, Aug. 26.
Haworth, Wade Dayton, Ohio, harness collars, May 7.
Hagans, Harrison Brandonsville, Va., washing machine, July 5.
Hoskins, Horatio Scipio, N. Y., washing machine, Aug. 26.
Hunt, Walter New York, inkstand, May 29.
" " " Oct. 7.
" " " Dec. 11.
Harrington, Dan. Phila., Pa., pen-holders, Sept. 2.
Horst, Chas. New Orleans, La., pianoforte, Sept. 27.
Hoe Richd. M. New York, printing-press, May 1.
Hemming, Richd., Boston, Mass., type-setting, Dec. 16.
Hoar, Mahlon New Athens, O., fracture app's, Nov. 8.
Harrington, Danl. Phila., Pa., galvanic inst., Sept. 2.
Hard, D. B. W., Bethlehem, Ct., truss, May 16.
*Hatch, John Attleborough, Mass., buttons, Feb. 20.
Haywood, Benj. Pottsville, Pa., coal breaker, May 21.
Hyatt, Thaddeus New York, vault covers, Nov. 12.
Hunt, J. S. L. Boston, Mass., planing machine, Oct. 9.
Hale, Warren Dana, Mass., lathe, July 22.
*Hale, Luke Hollis, N. H., horse-power, Jan. 16.
Hanival, Chas. Baton Rouge, La., skimming liquors, April 26.
Harrington, Danl., Phila., Pa., inkstand, Nov. 8.
Hawkins, Jos. West Windsor, N. Y., gridirons, Mar. 26.
Isham, Henry Montpelier, Vt., locks for safes, Nov. 12.
*Ives, Joseph Bristol, Ct., clocks, Feb. 24.
*Jones, Elias Amsterdam, N. Y., bee-hives, Feb. 12.
Johnson, J. Wilmington, Del., smut machines, Nov. 8
Jones, Hy. C. Newark, N. J., lock for valise, Apl. 26.
Jones, Adrian New York, hot-air furnace. Aug. 9.
Jones, N. P. New York, ship-anchors, July 5.
Jones, Jas Galway, N. Y., wheel-hub, April 1.
Jakes, H. E. Springfield, Vt., horse-power, May 6.
Jewett, N. T. Worcester, Mass., musical reeds, Dec. 31.
Jackson, G. W. Lynn, Mass., pianofortes, May 1.
Kingsley, R. Springfield, Mass., lock and latch, Apl. 16.
Keyser, Andw. Fulton, Mo., lard oil lamps, Aug. 20.
Kimball, J. T. Kennebunk, Me., carriages, July 22.
*Knowlton, E. A. Columbia, S. C., corn and cob mill, Feb. 12.
King, T. H. New York, refrigerators, June 20.
Kingsley, J. L. New York, printing-press, Jan. 4.
*Kneeland, J. C. Troy, N. Y., printing-press, Feb. 20.
Knight, L. L. Barre, Mass., match-splints, April 26.
Keith, Edwin Bridgewater, Mass., cotton gin brushes, Sept. 9.
*Keller, Jaques Phila., Pa., marble polishing, Mar. 12.
Katuseowski, Ky. New York, fire-place stones, Dec. 11.
Lambern, Israel, Marshallton, Pa., bee-hives, Aug, 26.
Lapice, Jos. L. France, sugar-making, July 10.
Lewis, H. L. B. New York, portable furnace, Sept. 19.
Loper, R. F., Phila., Pa., steam-engine, Sept. 30.
Loper, R. F., Phila., Pa., propellers, Nov. 26.
Leffel, James Springfield, O., horse-power, May 16.
Lehy, J. F. Huntsville, Ala., saddle-springs, July 5,
Laighton Wm. Portsmouth, N. H., backing machine for books, Jan. 10.
Lewis, H. L. B., New York, caloric dining table, Sept. 27.
*Lowber, R. W. New York, lead-pipes, March 12.
Low & Leake, Albany, N. Y., cooking-stoves, Aug. 20.
Low, P. Troy, N. Y., cooking stoves, Nov. 8.
Lardner, D. New York, preparing provisions, Aug. 9.
Lillie, Wm, Edwards, N. Y., bellows, June 2.
*McCarthy, F. Demopolis, Ala., cotton-cleaner, Feb. 12
McCormick, C. H. Rockbridge, Va, mowing machine, Jan. 31.
McKonnon, Angus New York, locks and keys, Aug. 16.
Merrick, Geo. New Orleans, bagasse drying, April 10.
Maclean, Jas. Phila., Pa., lamp wick tubes, Dec. 26.
Mott, J. L. New York, stoves, Nov. 1.
Montgomery, Jas. Memphis, Tenn., steam boiler, Dec. 26.
Montgomery, J. Memphis, Tenn., safety app's, Sept. 2.
Mitchell, Alex. Belfast, Ireland, ships' moorings, Apl. 1
Mather, Sarah P. Brooklyn. N. Y., submarine telescope, April 16.
McCarty, Hy. Pittsburg, Pa., excavator, April 1.
Mussey, Thos. New London, Ct., car bodies, Nov. 1.
Mecay John, Millsborough, Pa., water-wheel, Dec. 26.
Morse, Earnest New York, fire-engines, Dec. 20.
Morris Eph. New York, rising and lowering weights, July 5.
Mauck, Robert Honeyville, Pa., flour bolt, Dec. 26.
*McCarthy, Formes Demopolis, Ala., grist-mill, Feb. 24
Merrick, Silas Fallstown, Pa., stave machine, Nov. 12.
Montgomery, Richd. Waterville, N. Y., horse-power, April 10.
Miner, John Fallstown, Pa., stave machine, Nov. 12.
Magoun, Joseph East Cambridge, Mass., glass pressing, Dec. 6.
Mott, Jordan L. New York, chairs, Aug. 20,
Maynard Edw. Washington, D. C., gun locks, Sept. 22.
Mills, Wm. New Athens, O., pract. machine, Nov. 8,
Morehead, D. C., New York, galvanic rings, Aug. 26.
*Morrison, John Newark, N. J., stoves, March 12.
Myres. Samuel Schenectady, N. Y., cooking stoves, Dec. 31.
*Maull Jas. Phila., Pa., sails for ships, Dec. 11.
*Moore, H. D. Phila., Pa., marble polishing, Mch. 12.
Mott, Jas. Westerly, N. Y., knitting skeins, May 10.
Newton, Daniel Louisville, Ky., tinware, Dec. 20.
Norton, A. P. Waterville. N. Y., vice, May 16.
Nield, Jas. Taunton, Mass., loom power, March 15.
*Nield, Jas. Taunton, Mass., loom power, March 15.
Norton, A. P. Sangerfield, N. Y., bark-mill, June 25.
Northrup, J. G. Cortlandville, N. Y,, printing-press, Apl. 26.
*Newbury, James W. Kensington, Pa., shoemakers' shoulder irons, Feb. 20.
Oates, Geo. Charleston, S. C., door lock, Sept. 24.
Oxnard, John, Portland, Me., locks, April 10.
Osborne, Marmaduke New York, hat-bodies, Nov. 11.
Owen R. Parson Cincinnati, O., brick-making, July 26.
Owen, Morris Sangerfield, N. Y., bark-mill, June 25.
Oliver, Chas. F. Lynn, Mass., pianoforte, May 1.
Orton, H. S. Porter county, Ind., bakers, Aug. 9.
Parks, Elias Wheatfield, N. Y., bee-managing, July 26.
Powell, Saml. W. Turbet, Pa., clover mill, Aug. 16.
Pitts, A. H. Winthrop, Me., fodder cutter, May 1.
Palmer, J. E Haddam, Conn., door-fastenings, Oct 7.
Parkhust, S. R. New York, cotton gin, May 1.
Phœnix Manf. Co., Paterson, N. J., loom weaving April 1.
Pfanner, Fred. Providence, R. I., dye stuffs, Sept. 13.
Parkhurst, S. R. New York, propeller, Sept. 26.
Phleger, Leonard Wilmington, Del., propeller, Sept 13.
Pilbrow, Jas. England, railway, July 26.
Platt, Josiah Bridgeport, Conn., grinding-mills, Dec 26.
Parker, Geo. Carver, Me., wind-mill, Sept 11.
Pfiester, Daul. Switzerland, stone-dressing, April 10.
Parmalii, F. D. Akron, Ohio, tanning, Nov. 1.
Pratt, Elijah New York, nipples a't, August 4.
Pratt, Elijah New York, nursing bottle, August 9.
Potter, J. Gettysburgh, Pa., cooking stoves, Nov. 18.
Peck, R. Attica, N. Y., cooking stoves, Nov. 12.
*Patterson, Alvan Rush, Pa., safety valve, March 21.
Pelton, A. S. Clinton, Conn., shingle machine, Oct. 16.
Plant, John Washington. D. C., chimney, Nov. 20.
Quigly, T. B. Mansfield, Ohio, plow wheel, Oct. 7.
Queen, C. V. Peekskill, N. Y., portable forge, Nov. 18.
Quinn. Alex. New Alexandria, N. J., saw mills, June 25.
Robb, Jas. Lewistown, Pa., bee hives, Dec. 31.
Ralston, Andw. West Middleton, Pa., cultivator, Sept. 2.
Rogers, D. B. Stafford, N. Y., cultivator tooth, Nov. 1.
*Rogers, Jacob Uniontown, Md., cutting and grinding fodder, March 12.
*Roberts S. J. Jeffersonville, Pa., plow, Feb. 12.
Rogers, D. B. Stafford, N. Y., dies for cultivator's teeth, Nov. 8.
Russell, G. O. Middletown, Conn., knobs for doors, Oct. 7.
Reynolds, S. G. Bristol, R. I., pin machine, Dec. 31.
*Reed, H. G. Scituate, Mass., rivet machine, March 12.
Roe, H. A. Erie, Pa., bending sheet iron, Sept. 11.
Rust, Samuel New York, lampwicks, May 10.
Roney, B. T. Attleborough, Pa., cooking stoves, Sept. 11.
Robinson, E. C. Troy, N. Y., cooking stoves, Nov, 26.
Rotterbant, L, A. Poland, removing incrustations from steam boilers, Sept. 11.
Rogers, Thos. Paterson, N. J., cut-off valve, May 1.
Raisbeck, Jas. New York, ships anchors, May 5
Rider, Nathan Worcester, Mass, bridges, Nov. 26,
Rowan, Wm. Belfast, Ireland, anti-friction boxes for car axles, Oct. 9.
*Ray, F. M. New York, trucks for railroads, March 21.
Ross, J. P. Lewisburg, Pa., corn and cob mill, Nov. 1.
*Royes R. D. Detroit, Mich., boring and mortising, Jan. 23.
Robertson, Thos. A. Georgetown, D. C., shoe peg machine, Aug. 16.
Rider, Jas. Wooster, Ohio, boot paterns, June 2.
Ross, J. H. New York, vapor bath, April 16.
Ross, J. H. New York, exercise swing, Aug. 26.
Riley, W. W. Columbus, Ohio, tooth extractor, Nov. 8.
Richardson, W. Philadelphia, Pa., coal breaker, Sept. 2
Rogers, R. C. Saybrook, Ct., machine for dressing combs, Dec. 20.
*Roberts, S. J. Jeffersonville, Pa., plough, Feb. 12.
*Sanburn, Abram Carthage, Ohio, bee hives, March 26.
Snydam Chrs. Lambertsville, N. J., bee hives, Nov. 18.
*Springsteed, R. H. Wooster, Ohio, cultivator and seed planter. Feb. 12.
Shearer, Saml. Big Prairie, Ohio, plow, July 14.
*Seebler, D. M. Wooster, Ohio, straw cutter, Feb. 20.
*Sabbaton, P. A. Reading, Pa., hot blast forge, Feb. 24
Sellers G. E. Cincinnati, Ohio, forge hammer, Jan. 10.
Smith, B. M. Massillon, Ohio, hemp and flax breaking and dressing, Oct. 7.
Singleton, W. W. Springfield, Ill., hemp and flax dressing, May 7.
Slingerland, Benj. Paterson, N. J., loom weaving April 1.
Schupf, G. A. New York, curing meats, May 7.
Stanton, N. P. Syracuse, N. Y., impurities from salt water separating Aug. 23.
*Slane. P. F. East Cambridge, Mass., lamps, Jan. 23.
*Scripture, S. E. Syracuse, N. Y., oil feeders, Mar. 15.
Stanly, Henry West Poultney, Vt., coal stove, Jan. 4.
Smith, Theophilus Galway, N. Y., cooking stove, June 10.
*Stanly Henry West Poultney, Vt., rotary top stoves, Oct. 25.
Simpson, Thos. D. Norwich, Conn., removing locomotive wheels, Sept. 30.
Sweet, Saml. Jr., New York, spark arrestor, May 13.
Stafford, D. S. Rochester, Ill. excavator, June 10.
Scoville, H. H. Chicago, Ill., rock driller, Sept. 9.
Speakman, S. T. Philadelphia, Pa., rock and earth borer, Sept. 17.
Stratton, R. A. Philadelphia, Pa., rock and earth borer, Sept. 17.
*Shiner, C. J. Boston, Mass., window sash, March 21.
Semple Jas. Alton, Ill., steam coaches, May 1.
Scripture, S. E. Syracuse, N. Y., carriage wheels, April 1.
Springsteen, J. J. Oswego, N. Y., water-wheels, May 16.
Seeley, O. W. Sodus, N. Y., water-wheel, July 30.
Slocum, Jos. Syracuse, N. Y., cotton press, April 22.
Scudder, Isaiah Plattsville, N. Y., bark mill, Oct. 25.
Swift Beriah Washington, N. Y., coffee mill. Aug. 16.
*Smith, Jazel Petersburg, Va., mill for hulling seed, March 15.
St. John, M. W. Plainfield, N. Y., turning lathe, May 13.
*Stone, D. C. Warwaring, N. Y., auger handles, Mar. 12.
St. John. M. W. Plainfield, N. Y., lathe, May 13.
Snow, Cheyney Spencer, N. Y., boot crimp, May 21.
Sadler, T. N. Spencer, N. Y. boot crimp, May 21.
Sandford, Wm. Cambridge, Mass, brick press, Sept. 9.
Suits, Benj. Chitenango, N. Y., saddles, Aug. 9.
Snider, Simon Dayton, Ohio, tanning app's, Aug. 10.
Smith, Iva Chagrin Falls, Ct., bedstead fastening, Oct. 25.
Sabnie, H. W. Rushville, N. Y., washing and churning Machine, Aug. 16,
Shaw, W. G. Thompson, Ct., turtle shell bugles, Aug. 4.
Senor, W. F. New York, piano-forte bottoms, Nov. 21.
Siemans, F. W. Berlin, Prussia, anastatic printing, Oct. 25.
*Saxton, J. Jos. Washington, D. C., printing-presses, March 21.
Starr, T. W. Philadelphia, Pa., type casting, Aug. 4.
Sweet, Benj. M't Morris, N. Y., medicated baths, Dec. 31.
Smith, J. C. Chelsea, Mass., portable shower baths, June 2.
Stitwell, S. B. Brooklyn, N. Y., garment-cutting, June 20.
*Shecut, W. H. New York, adhesive plaster, March 26.
Seymour, Pierpont East Bloomfield, N. Y., smut machine, Nov. 8.
Trump, Jos. Connellsville, Pa., plow, Sept. 9.
*Tatham, John Rockdale, Eng., cotton roving, laying in cans, March 14.
*Tenny, Oliver Dorchester, Mass, machine for cotton wadding, Jan. 10.
Townshend, Wm. Rochester, N. H. hand loom, Apl. 10.
Townshend, E. S. Palmyra, N. Y., making rope, Feb. 28.
Tyre, H. G. New Brunswick, N. J., cutting india-rubber shreads. June 7.
Tyson, Isaac Jr., Baltimore, Md., chromate of potash, Oct. 9.
Thyng, L. B. Lowell, Mass., hanging car bodies, Nov. 18.
*Tyler, P. B. Phila., Pa., cotton press, Jan. 16.
Trapp, W. P. Dryden, N. Y., barrel machine, Oct. 1.
*Tabbot, Saml. Richmond, Va., steam valves, Feb. 28.
Throckmorter R. P. Brooklyn, N. Y., planing machine, May 1.
Tally, G. R. Westbrook, N. C., irregular sawing apparatus, April 16.
Taylor, Saml. Cambridge, Mass., bristle blocks, May 1.
*Treadwell, Danl. Cambrigde, Mass., wrought iron cannon, Feb. 12.
Thurbec, Chas. Norwich, Conn., writing machine, Nov. 18.
*Towne, J. H. Phila., Pa., steam-engine, Jan. 10.
Terry, Eli Plymouth, Conn., clocks, Aug. 9,
Tainter, Wm. Porterleo, Indiana, bakers, Aug. 9.
*Thorp, Gould New York, cooking stoves, March 26.
Upham, Geo. Hebron, Ohio, bee hives, May 1.
Utter, Samuel New York, stoves, May 1.
Urner, Jesse Wilmington, Del., corn and cob mill, Oct. 25.
*Varden R. B. Baltimore, Md., hinges, Feb. 12.
Varnahan, Arthur London, England.
Wheeler, Clark Little Valley, N. Y., bee hives, June 20.
West, E. C. Bradford, Vt., harvester, June 25.
Woodward, F. Upper Freehold, N. J., mower and reaper, Sept. 30.
Woods, Enoch Beivit, Wis., planting machine, Jan. 10.
*Woodcock, Ban't it Wheeling, Va., plow, Jan. 31.
Warren, J. F. E. New York, threshing machine July 14.
*Whippe, Solomon Albany, N. Y., tile cutter, Feb. 12.
Winslow, J. F. Troy, N. Y., spike machine, May 10.
Washburn, T. F. Lowell, Mass, burring machine, Oct. 11.
*Whiteman, Hugh Pittsburg, Pa., carding machine, Feb. 12.
*Warren, T. E. Troy, N. Y., water-proof paint, Mar. 15.
Wilson, Jas. New York parlor grate, Sept. 13.
Wildman, Russell Hartford, Conn., gridirons, Nov. 8.
*Whelan, E. Phila., Pa., regulating lamps, March 26.
*Wolf, Chas. Cincinnati, Ohio, cooking stoves, Jan. 10.
*Wilson, Robert Williamsport, Pa., cooking stoves, Feb. 20.
Woelson, C. J. Cleveland, O., cooking stoves. Sept. 9.
Wiezbicki. F. P. New York, stone for fire place, Dec. 11.
Well, C. L. H. Lockport, N. Y., stone portable, Dec. 6.
*Wright W. M. Pittsburg, Pa., preventing steam boiler explosions, Feb. 24.
Wright, Wm. Rochester, N. Y., steam engine, Sept. 9.
Wilson, J. W. Phila., Pa., trusses for vessels' yards Dec. 20.
Walley, S. S. Charlestown, Pa., canal and railroad, Dec. 11.
*Webster, J. H. St. Louis, Mo., pumps, Feb. 28.
Walther, Fred'k Winchester, Va., pumps, May 1.
Whiton Milo J. Broadalbin, N. Y., bark mill, Oct. 25.
Weikart, Andrew Green Village, O., boring machine, Nov. 1.
Wright, Wm. New York, boring machine for grooves, June 10.
*Wilder, A. A. Detroit, Mich., boring and screw cutting, Jan. 31.
*Willowby, J. D. Gettysburg, Pa., turning lathe, Mar. 15.
Wheeler, Jas. Rootstown, O., lathe cutter, Aug. 16.
Webb, Benj. Warren, N. Y. saw mill, April 1.
*White, Cosman Galway, N. Y., boot crimps, Feb. 12.
*Wiles, Thos. Somerset, O., harness collars, March 21.
*Wilder, J. M. Peterboroug, N. H., meat cutter, May 10.
White, John Marshall, Mich., desk and table combined, Nov. 1,
Warren S. R. Montreal, Canada, piano-forte July 10.
*Walker, E. S. Carlisle, Pa., piano-forte, Jan. 16.
Ward, Allen Camden, N. Y., tailor's mea'e, Dec. 16.
*Waite John Lancaster, Mass., brick machine, Mar. 12.
Young, John West Galway, N. Y. boot crimping, Aug 26.

[Those marked * have already expired.

Patentees, or, if deceased, their heirs, may apply for the extension of patents, but should give sixty days notice of their intention. Read our preceding remarks carefully.

Interesting Items of Useful Information About Patents and Patent Law Cases.

There are questions constantly being put to us by our correspondents touching the legal rights of inventors and patentees. These questions are of a multiform character, and oft-times involve matters of great importance to those interested. We present herewith a great variety of topics which we have no doubt will interest and instruct all who are in any way concerned in inventions and patent property. The information is mostly based upon the patent laws and decisions made in accordance therewith.

SALE OF INVENTIONS PRIOR TO THE ISSUE OF PATENTS.

The question is often asked: "Can an invention be publicly used previous to the application for a patent without invalidating the claim after the Letters Patent are issued?" We answer *yes*. By the provision of the act of 1839, it is decreed that "no patent shall be invalid by reason of such purchase, sale, or use prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public, or that such purchase, sale, or prior use has been for more than two years prior to such application for a patent." This is a humane provision, as it may often happen that, at the time the invention is made, the inventor may not be in circumstances sufficiently affluent to enable him to apply immediately for the patent, or he may desire to make some experiments for the purpose of testing the probable value of his invention.

Inventors, however, should carefully avoid reposing too much confidence in this provision, as the same section of the law thus cited provides that "every person or corporation who has or shall have purchased or constructed any newly invented machine, manufacture, or composition of matter, prior to the application by the inventor or discoverer for a

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patent, shall be held to possess the right to use, and vend to others to be used, the specific machine, manufacture, or composition of matter so made or purchased, without liability therefor to the inventor or any other person interested in such invention."

NATURE OF A CAVEAT.

A caveat is a confidential communication made to the Patent Office, and is therefore filed within its secret archives. The privilege secured under a caveat is, that it entitles the caveator to receive notice, for a period of one year, of any application for a patent subsequently filed, and which is adjudged to be novel, and is likely to interfere with the invention described in the caveat; and the caveator is then required to complete his application for a patent within three months from the date of said notice. Caveat papers should be prepared with great care. The government fee is $20, and this sum applies when the application is made for a patent.

Caveat papers cannot be withdrawn from the Patent Office after they are filed, but additions may be made thereto, by sending them to the Office; and the privilege enjoyed under a caveat may be renewed at the end of the year by the payment of a fee of $20; and no money is ever returned on caveats, applications for designs, or re-issues.

THE INVENTOR MUST APPLY FOR THE PATENT.

It is necessary, in all cases, that an application for a patent should be made in the name of the inventor. Canadians, and other foreign inventors, have erroneously supposed that by transferring their full rights to an American citizen, preliminary to an application, they could thereby obtain the patent for the same small fee as is required of a citizen. There is not a lawyer either in England or America, from the Lord Chief Justice downwards, competent to prepare a transfer that can convey to another the right to legally execute papers on an application for a patent. In all cases the applicant must swear to his invention, and also as to whether he is a citizen or a foreigner. This is a perpetual bar to the conveyance of any such right.

RIGHTS OF MINORS.

A minor can take a patent in his own name, but it is subject to the control of one of his parents or his legal guardian, the same as any other property that may come into his possession; and when an assignment of an invention or patent is made by a minor, the consent of the parent or guardian should be duly inscribed upon the deed of transfer.

Women can also apply for and obtain patents upon the same terms as the sterner sex. We frequently take out patents for ladies; but they do not exercise their ingenuity as much as they ought.

CURIOUS QUESTION ABOUT OWNERSHIP IN PATENTS.

Many employers think themselves entitled to all inventions made by persons in their service. This is not so, unless there is a stipulation to that effect; and it is high time that employers should abandon such unjust pretensions. No inventor need fear of thus losing his right, unless it can be proved that he was employed expressly to bring out such invention for the benefit of his employer. This fact may or may not apply to an invention made by a slave; his *status* is, we understand, about to be legally determined.

PRELIMINARY EXAMINATIONS.

The United States Patent Office at Washington contains nearly 30,000 models pertaining to patented inventions, all of which are open to public inspection and examination, together with the drawings and specifications relating thereto. But the distance of the capitol and the time and expense involved in a journey thither deters, in effect, the majority of inventors from reaping the advantages which a personal examination of previously patented inventions might often-times give them. To obviate this difficulty we are in the habit of making these examinations at the Patent Office, for inventors. When it is desired to ascertain definitely whether an invention, believed to be new, has been previously made, or to what extent, if any, it has been anticipated, the applicant sends to us a rough sketch and description of the device. We then make a thorough examination in the Patent Office at Washington, and report the result to the applicant. The charge for this service is only $5; and it is frequently the means of saving the applicant the entire expense of preparing a model, paying government fees, &c., by revealing the fact that the whole or a material portion of his improvement was previously known. This preliminary examination is sometimes also of importance in assisting to properly prepare the papers, so as to avoid conflicting with other inventions in the same class. The reader should carefully note the distinction made between this preliminary examination at the Patent Office and the examination and opinion given at our own office, either orally or by letter, for which no fee is expected. It is only when a special search is made at the Patent Office that the fee of $5 is required. We are able, in a vast number of cases submitted to us, to decide the question of patentability without this special search.

PATENT FEES.

When a machine or invention is made by two parties, one being a citizen of the United States and the other a subject of some foreign country, that amount of government fee will be demanded which would be required in case both were foreigners; for instance, if one is a citizen of the United States, and the other a subject of the British Crown, the whole fee would be $500. To all other foreigners the fee is $300; while to a citizen of the United States, or to an alien who has resided in this country for one year next preceeding the date of his application, and has within that time made oath of his intention to become a citizen, the fee is only $30. In case of rejection, followed by withdrawal, two-thirds of the above fees are always returned.

ASSIGNMENTS.

An inventor may sell and assign all his right, title and interest in an invention prior to the application for a patent, or subsequently, as desired. But no assignment can convey to the purchaser the right to apply for the patent in his own name. The petition, drawings and specifications must be signed by the inventor, and no attorney or other substitute will answer, except in case of death, when the heir or administrator may sign.

When it appears to the Commissioner that a full assignment of the invention has been made prior to the application, he will issue the patent to the purchaser as assignee of the inventor.

There are three classes of assignments that must be recorded at the Patent Office within three months from their date, in order to ensure their validity against subsequent purchasers without notice. These are, first, an assignment of the entire patent; second, an undivided portion of a patent; third, the sale of an exclusive right, under a patent, for a particular territory. Illustration:—If A, having already sold a patent to B, turns knave and makes a second sale of the same property to C, who records it, (B having omitted to place his assignment on record within three months, and C having no knowledge of the sale to B,) then the assignment to C will be held valid, and that to B becomes null; B's only remedy being a suit for fraud against A.

We are very frequently asked the following question: "A, B and C each own an undivided third-interest in a certain patent. Can A proceed to manufacture and sell the patented article whenever he chooses, without the consent or without accounting to B and C as to the proceeds?"

In answer we say that A can proceed, without consent, to manufacture and sell the patented article whenever he pleases. Whether B and C can procure an order from the Court compelling A to give bonds that he will account for profits and set apart a third share thereof to each, under the direction of the Court, is a question as yet undecided.

If an assignment of the invention is made at the time of the application, and the case is rejected after examination, and the inventor or his attorney afterward succeeds in securing the issue of the patent, by appeal or otherwise, this issue does not, as some have supposed, render the transfer invalid. The same remark also applies to a case which may have been withdrawn and re-submitted and patented under a new application.

It should be borne in mind, however, that the Letters Patent cannot issue to the assignee for only a moiety or part of the invention. Neither can the Letters Patent issue to assignees in cases where an inequality of interest exists; for instance, where one party has one-fourth and the other has three-fourths. To secure the issue of the patent to an assignee or assignees, he must hold the full and undivided right to the same.

STAMPING PATENTED ARTICLES.

It is customary, but not compulsory by any existing law, that patentees should have their *names* stamped or engraved on the patented articles offered for sale; but the patentee *is* required by law to conspicuously stamp or engrave the precise *date* on which the patent was issued, upon each article. The penalty of a non-compliance with this rule is one hundred dollars for each violation of the law, and a violation occurs as often as a machine is manufactured or sold. The same penalty is enforced against any person who marks the word "patented" upon a machine or other article for which no patent has ever been granted. This is one of the few forms of falsehood for which our truth-loving legislators have provided a pecuniary punishment. But pending the issue of a patent to an applicant, the latter may mark the words "patent applied for" upon his machine or other article, and affix his name thereto, if he chooses.

QUESTIONS ABOUT THE USE OF PATENTED INVENTIONS.

It seems to be a disputed question with many persons, whether a patent for an invention prevents a man from imitating it, merely *for his own private use*, so long as he does not sell it. We answer, it certainly does. A patent is an exclusive privilege, granting to the patentee, for the term of fourteen years, the right to *make*, vend, and use, and to sell to others the same rights and privileges; therefore no one has any right to use a machine on his individual account. If this were not so, many patents would be entirely worthless, such as those for bridges and other structures or machines, which could be used by corporations, manufactories, &c., and the whole catalogue of manufacturing processes would thus become of no value.

The question is often asked: "Suppose John Brown owns the right of a patented invention for the State of New York, and John Smith, for the State of Pennsylvania. Then suppose a resident of New York goes into Pennsylvania and there purchases one of the machines thus patented. Now, can the latter individual carry it into the State of New York and use it without liability to John Brown?" We answer *no*. John Smith can sell as many machines as he pleases, to all who come upon his territory to purchase them; but the purchaser would be liable to damages if he used that machine in any State for which the right was owned by another party. The same remark applies also to the rights for towns and counties. The owner of such a right may take an order to make a machine from another town or county, but he must not sell it there; and the person whom he supplies cannot use the machine without the consent of the licensee of his own county.

CAN A PATENT BE ATTACHED?

This is an important question. It is contended by some that, as a patent is granted to a person specified in the instrument for his exclusive use and benefit, no court nor power of government can deprive him of it unless he assigns it, and without his assignment the mere possession of the document is as so much waste paper. Lawyers engaged in ordinary civil suits have confused this subject very much for want of proper knowledge on this subject. Some years since we took the advice of an eminent counsel on patents, resident in this city, who gave it as his opinion that, by a proper process of law, a patent can be attached and sold like other property. Curtis, in his able work on patents, referring to the same subject, says:—"The interest in a patent may also be assigned by operation of law, in case of the bankruptcy of the patentee, as well as by his *voluntary* assignment. There is no question that a patent already obtained passes to assignees in bankruptcy."

REJECTED APPLICATIONS.

When papers are unskillfully prepared, or when an invention is found to have been wholly or in part anticipated, the Commissioner of Patents is compelled to reject the application. The applicant is notified of the rejection by an official letter, which cites briefly the reasons—in one case, requiring a better specification and drawing, or, in the other, referring him to other similar inventions, either patented, rejected, or otherwise known. Applicants, or their attorneys, who live at a distance, are of course unable to examine into the references and reasons given for the rejection; so that, in most cases, they are in the dark as to whether they have been wholly or only partially anticipated; or if an error has been made in the papers, they are equally uncertain as to the proper mode of correction.

We furnish the following letter as an example of cases, badly prepared, that are constantly being placed in our hands, for the purpose of being straightened up and conducted to a successful issue:—

UNITED STATES PATENT OFFICE,
June 30, 1858.

SIR:—The specification and one drawing of your * * * * are herewith returned, to enable you to furnish a specification which shall more definitely and fully state the construction and operation of your alleged improvements. The claim should be more definite, and should contain the words "substantially as herein above described," or words to that effect. Your oath is not in proper form.

Respectfully yours, &c.,
J. HOLT, Commissioner.

We purposely omit the name of the invention, as well as that of the applicant. It pertains to an application for a patent which was prepared by a lawyer who, though probably well versed in legal lore, possessed no knowledge or facilities for doing patent business. His client's specification was consequently botched-up, and the application was rejected until proper papers should be filed.

THE BOARD OF APPEALS.

An applicant for a patent, if his case is rejected, is entitled to a re-examination and a hearing before the examining-officer; and, if again rejected, he may appeal to the Commissioner of Patents. The latter then calls to his assistance the Board of Appeals—a body composed of three examining-officers—who give a hearing, review the case, receive arguments, and then report to the Commissioner their views as to the propriety of granting the applicant's petition. The Commissioner awards a patent or finally rejects the case, in accordance, generally, with the report of the Board, and here the jurisdiction of the Patent Office terminates.

APPEALS TO THE UNITED STATES COURT.

When the applicant is dissatisfied with the final decision of the Commissioner of Patents, he may petition for an appeal to any judge of the United States Court in the District of Columbia. A government fee of $25 is required to be paid. The applicant files his reasons of appeal; the Commissioner answers them and produces all the papers before the judge; the latter hears argument, *pro* and *con*, and renders a decision, setting aside or confirming the ruling of the Commissioner.

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PRIORITY OF INVIENTION.

The fact that a patent has been granted is not full evidence that the patentee was the first inventor. If another individual comes forward, applies for a patent, and proves that he invented the thing prior to the invention thereof by the existing patentee, then the Commissioner of Patents will issue a grant to the second applicant. Two patents will thus exist for the same invention, the first of which, if not voluntarily abandoned by the holder, will, by due process of law, be adjudged invalid.

INTERFERENCE.

Where two different persons simultaneously apply for a patent for the same invention, or when a second inventor asks a patent for a thing already patented by another, the Commissioner of Patents will, either on his own volition or on request of the applicant, declare that *interference* exists; whereupon the Commissioner issues a notice to all the parties concerned, calling upon them to produce testimony, within a specified time, as to their respective dates of invention. This is done by witnesses, examined on behalf of the parties before any judge, justice or other officer qualified to administer oaths. The opposing party has the right to appear and cross-examine the witnesses in person or by counsel. The Commissioner awards the patent to whoever proves priority of invention.

In determining priority of invention, a variety of points are often to be taken into consideration. If the invention was experimentally shown at a prior date, but abandoned, such fact will not be conclusive proof of priority against a subsequent applicant who has gone steadily forward, and brought the invention into useful operation. Nor will the mere suggestion of the thing at a prior date, nor the mere drawing of the same upon paper, always be received as conclusive evidence of priority.

The circumstances which may affect the decision of the Commissioner are various, so that skill and experience, on the part of the attorney who examines or cross-examines the witnesses, is very desirable. After the testimony is submitted, the parties have the right to put in written arguments in support of their cases, reviewing the evidence, citing law points, &c.

The proper preparation of these arguments requires a knowledge of previous decisions in similar cases, and a thorough acquaintance with the law, rules and practice of the Patent Office. Attorneys who are inexperienced in patent business should never undertake to manage interferences.

ABANDONMENT.

After the expiration of two years from the date of a patent, it is then too late for a subsequent applicant to come forward and, by proving priority, receive a patent. In such cases the Commissioner of Patents holds that the prior inventor, by permitting the public exposure for two years, at the Patent Office, of a model and drawings of the invention, without setting up any claim to the invention, has virtually abandoned the improvement, and is not entitled to the protection of the law.

ANNULLING OF PATENTS.

The Commissioner of Patents has no power to annul an existing patent. He can order an interference to be declared between an existing patent and a pending application for a patent for the same invention, and then require testimony from each party in order to substantiate the question of priority of invention. If this is proved by the applicant for the pending case, the Commissioner exercises the right to grant the second patent. The evidence produced in the examination would confer a *prima facie* right upon the successful party.

RE-ISSUES.

The Patent Office is sometimes more averse to the first granting of a patent with a broad claim than it is to allow the inventor to increase his claim by a *re-issue*. It also sometimes happens, after the first issue of a patent, that the claim is not as broad as the inventor was entitled to; or it happens that an infringer, by some peculiar quibble, renders it doubtful whether, from the wording of the original claim, the patent would be fully established on a trial at law. To meet such cases, as well as to correct any mistakes that may appear in a patent, the law provides for a *re-issue* of the document, with a new specification, new drawings, new claims, &c. It has become quite common for the holders of valuable patents when infringed, to obtain a re-issue, before a suit is brought, with claims so worded as squarely to meet the infringer. In other cases where parties are using an invention without infringing, because not then covered by the claim of the patent, it is a practice to have the grant re-issued, with a claim that will render any further use an infringement. In such cases the users are generally willing to pay the patentee liberally rather than stand a suit at law.

Again: where the manufacture of a particular device is *intended* to be commenced, a re-issue is sometime obtained as a measure of intimidation.

The owner or assignee of a patent has the same right to apply for and obtain a re-issue as the original patentee. The government fee, payable on applying for a re-issue, is $15. The fees of attorneys for preparing and conducting such cases are exceedingly variable. Our limited space forbids further discussion of the subject. Those who are desirous of obtaining re-issues are invited to correspond with us. We have had much success in cases of this character.

USING PATENTED DEVICES AFTER EXTENSION.

The benefit of an extended patent inures solely to the original inventor and patentee, or to his legal representatives. An assignee for the first term of the patent only, cannot exercise any right or interest under the extended patent. This question has been determined by a decision of the U. S. Supreme Court. Assignees, however, who were using patented machines at the time of the extension, still possess the right to use the same specific machines under the extended term of the patent, but this right does not cover the manufacture of new machines or their sale to other persons.

The language of the law on this point is as follows: "And the benefit of such renewal shall extend to assignees and grantees of the right to *use* the thing patented to the extent of their respective interests therein." This clause obviously permits only the using of the invention according to the interest in it, which is the *machine* and nothing more.

LICENSE LAWS OF STATES.

With a view to protect their own manufactures, certain of our States have passed laws regulating the conditions upon which goods may be sold by itinerating merchants or peddlers within their limits. Persons interested in the sale of patented articles have often supposed that these laws could not prevent them from selling such articles, as, otherwise, the laws would conflict with our United States patent code, which gives to patentees and their assignees the exclusive right to make, use, and sell their inventions in all States and Territories within the jurisdiction of the United States Supreme Court. In this opinion they are evidently mistaken, as each State exercises the right to decide *what* shall be sold, and *how* it shall be sold, within its borders. Therefore peddlers of patented articles cannot sell them in any State where such laws exist, without obtaining a license from the proper authorities.

RIGHTS OF CITIZENS WHO HAVE REMOVED FROM THE UNITED STATES.

It not unfrequently happens that natives of the United States remove to the adjoining provinces, and remain there without taking any legal measures to dissever their former political connection. Sometimes inventors have applied to us to know what rights they possess under such circumstances. The following opinion from the United States Attorney-General will enable all to decide for themselves how far removal has affected their citizenship. He says:—

"There is no statute or other law of the United States which prevents either a native or a naturalized citizen from severing his political connection with the government, if he see proper to do so, in time of peace, and for a purpose not directly injurious to the interests of the country. There is no mode of renunciation prescribed. In my opinion, if he emigrates, carries his family and effects with him, manifests a plain intention not to return, takes up his permanent residence abroad, and assumes the obligation of a subject to a foreign government, this would imply a dissolution of his previous relations with the United States, and I do not think we could or would afterward claim from him any of the duties of a citizen."

COPIES.

Messrs. MUNN & Co. will furnish, on short notice, copies of the full drawings and specifications of *any patent ever granted by the United States government*, except those destroyed by the burning of the Patent Office in 1836, and never restored. The expense of such copies is not much: the cost depends upon the amount of labor involved.

Copies of *the claims* of any patentee we are always ready to furnish for $1 each patent.

To Patent Agents and Lawyers.

We have at our command the combined facilities of the two largest patent agencies in the country, one being located at New York, and the other at Washington. These facilities include the constant daily access to all the official records, assignments, extensions, books, models, and papers pertaining to nearly all the American patents ever granted, and to thousands of rejected cases and foreign patents. In addition to this, we have the advantage of many years' experience in the business, during which we have, and do now maintain, a palpable pre-eminence over all other establishments of the kind in the world.

We mention these facts for the benefit of our brother agents, wherever they may happen to be located, and would say that the combined advantages of our agencies *are always at their service*. Our position in regard to this, as respects facilities for conducting patent business, is somewhat the same as that occupied by the leading mercantile importers in the seaboard cities in relation to the procuring of goods for country merchants. All the original sources for information and action are at our fingers' ends.

To other patent agents and lawyers we shall be happy to render every assistance in our power in any matters relating to patent business (as we are frequently having occasion to do), whether it be in the prosecution of rejected cases, the preparation of specifications, drawings, assignments, searches of the records, extensions, re-issues, appeals, &c.

In new applications it will generally be advisable to have their papers pass through our hands for revision before being sent to the Patent Office, for it is usually more difficult to straighten a case after it has been improperly submitted, than before the documents are filed. Some agents may find it convenient to have us prepare the patent papers from beginning to end. When this is desired, the model should be forwarded to us. Copies of any desired claims, or the patents, with drawings in full, we can promptly furnish.

Our brother agents are, no doubt, frequently applied to for their opinions relative to the novelty and patentability of new inventions. But such has been the wonderful augmentation of improvements within the past ten years, that few persons can give an opinion worth a straw, unless it is based upon or backed up by *a thorough special examination of the models and patents at Washington*. We therefore advise all agents to recommend their clients to have a *preliminary examination* made at Washington, to ascertain whether their invention is actually new. This service will be promptly rendered by us and, including a written report, will cost but a small fee. The client's name need not appear; a sketch and description of the improvement is all that we need. We shall be pleased to correspond with patent agents, at all times, and to furnish any further information, by way of making arrangements, that they desire. Address MUNN & Co., New York.

In respect to taking out foreign patents we would also say that our facilities are of the most extensive and complete character. We employ the most experienced attorneys abroad, so that those who commit business to our care will nowhere have it exposed to the risks of irresponsible and incompetent sub-agents.

The Patent Agency Business.

Such is the simplicity of the American patent law that the drawings and specifications of applications for patents can just as readily be prepared, if the party is competent, at a distance from the capital, as within its immediate precincts. The result is that applicants unwisely attempt to prepare their own papers; hundreds more employ country lawyers or notaries public, or justices of the peace, or other inexperienced agents, while the remainder entrust their business to the Scientific American Patent Agency and the few other skillful houses who make the preparation of patent papers their speciality. If inventors were more careful at the start to avoid the employment of ignorant persons, they would often save themselves from trouble, delay and exorbitant expense. Many a poor countryman is induced to make a weary and expensive pilgrimage to Washington, under the supposition that no other method exists whereby to correct the stupid errors contained in his papers and by reason of which his patent is refused. And he innocently supposes that on his arrival he will be received with open arms by all the government officials, from the President down to the doorkeepers of the Patent Office. He imagines that he has only to confront the Commissioner or the Examining-officer, when all difficulties will vanish as by magic, and the patent be issued to him on the spot!

But the reality is otherwise. The applicant is informed by the attending official that until his papers are properly corrected and presented, his case will not be considered; he will be told that his explanations, if intended as amendments, must be put in writing; that he had better employ some competent party to put his ideas into shape; and that under no circumstances can a patent be issued to him on the spot, because, first, the case must be officially examined in secret, and second, about two weeks' time is required to prepare and record the document before it can be issued.

If the applicant is a prudent person, his next step of course, will be to find some competent attorney to straighten and present his case aright. As he issues from the spacious portico of the Patent Office, the sign of "MUNN & CO., SOLICITORS OF PATENTS, SCIENTIFIC AMERICAN OFFICE," upon the opposite corner, strikes his eye; somebody must be employed; the name is familiar to his ear; it is a well known, experienced firm; it is the most successful agency in the country, for obtaining patents. He crosses the street, enters their office, makes known his business, and his troubles are rapidly brought to a close.

The personal attendance of an inventor at Washington is generally unnecessary, as all the business can be readily and thoroughly arranged by correspondence. Those, however, who prefer to visit Washington upon patent business, or who desire any aid or assistance, are invited to call at our office in that city. We shall at all times be happy to serve them. Hundred of rejected and defectively prepared cases are annually argued and corrected by us, and our success in this especial branch of business has been *very great*. Inventors who propose to visit Washington would do well to preserve this page of our paper, in order the better to keep the locality of MUNN & Co.'s office in mind.

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The American Patent Office.

Our view shows the United States Patent Office at Washington, and also the branch office of the Scientific American Patent Agency. It will be observed that our Washington office is on the corner of Seventh and F streets, *directly opposite the Patent Office.*

The main front and entrance of the Patent Office is on F street, facing the south, and is seen at the left in our view; the right front is on Seventh street, and faces the east. The building occupies an entire block, is built mostly of white marble, in the Doric style of architecture, and presents the finest appearance of any of the public buildings at the capital. The edifice was designed by the late Wm. P. Elliot, a solicitor of patents and an old resident of Washington. The style of architecture was taken from the Parthenon or Temple of Minerva, at Athens; but the Patent Office greatly exceeds in its dimensions the measurement of that ancient heathen temple. The Parthenon of the Old World was dedicated to the rites of a wretched idolatry, and its uses and influence tended to degrade the human mind, and crush the uprising intellect. How much more noble is the dedication and the influence of the Parthenon of the New World! It is the very embodiment of genius, and the great encourager of progress, of knowledge, and of mental power.

By the act of March 3, 1849, the Secretary of the Interior is granted the supervision of the Patent Office, and hence his present occupancy of a great part of the building. But Mr. Elliot, who planned the building, did it solely for the useful and fine arts, and the public voice will ultimately sustain the original design.

The models are arranged in elegant glass cases, and are contained in two large halls, measuring together a length of about six hundred feet. There are two rows of cases, and they are placed in double tiers, with platforms to give access to the upper parts. The Patent Office is open daily from 9 A. M. to 3 P. M., and the models are on public exhibition. They constitute a vast museum of art and genius, the like of which exists nowhere else in the civilized world.

The history of the American Patent Office is briefly as follows:—

By act of Congress in April, 1790, entitled "An Act to Promote the Progress of Useful Arts," the Secretary of State had assigned to him the duty of receiving applications for the discovery of any useful art or invention; said officer, with the Secretary of War and the Attorney-General, constituting a Board for that purpose, who issued the "Letters," which, upon examination by the Attorney-General of the United States within a given period, were signed by the President of the United States.

To a single clerk in the Department of State, then held in Philadelphia, was assigned the duty of filing papers and copying schedules of patents. The destruction by fire of the public archives, in 1814, renders it difficult to give his name.

The act of February, 21, 1803, repeals that of the 10th of April, 1790, yet were all patents issued under the former act valid, and the labors of preparation of the "Letters" were assigned to the Department of State, under charge of a clerk.

In 1800, when the seat of government was removed to Washington from Philadelphia, a distinguished man of genius, a fine writer and scholar, and a great lover of the fine arts, Dr. William Thornton, was appointed the clerk. He was born in the island of Tortola, in the West Indies, of American descent. He enjoyed the confidence of General Washington, and his design of the east front of the original capitol was adopted by the Great Chief. Dr. Thornton was an intimate friend of John Fitch and Robert Fulton of steam notoriety. The doctor was wealthy, and fond of fine horses. He was one of the original commissioners of the city, and General Washington had a great regard for him.

The Patent Office was then located in a large three-story building, known as "Blodgett's Hotel," which was also the Post Office. The model-room was on a part of the second story, and the mail department of the Post Office filled the remainder. In the northwest room of the third story was a fine musical instrument of Dr. Thornton's. The old "Blodgett Hotel" stood upon the site of the present south front of the General Post Office.

When the British, in 1814, proposed burning the building, Dr. T., in the most fearless yet gentlemanly manner, rode up to Admiral Cockburn, and ejaculated, "Is the character of the British to rival the Vandals in a war upon the fine arts, by the destruction of this building?" which he then first called the "Patent Office." (It had been known as "Blodgett's Hotel.") The effect was electric, for while the capitol and navy-yard and rope-walk were in flames, the British sailor rode off and quaffed his wine in Capitol Hall, at no time expressing any regret that "Thornton's toy-shop" was left standing.

This building was afterwards occupied in the winter of 1814-15, by both Houses of Congress, when the Patent Office writing was done at the house of the clerk, George Lyon, who resided near by. It was re-occupied in 1816 by the Patent Office, Congress having secured accommodations in the "Brick Capitol."

George Lyon, clerk in the Patent Office, died in 1817, and William Elliot was appointed first clerk under Dr. Thornton, known as "Superintendent." Dr. T. died in 1827, and is buried in the Congressional Burying Ground; and he and his friend Elliot—mathematician and astronomer—lie within a few yards of each other.

Thornton and Elliot were assisted by another clerk, R. W. Fenwick, and this constituted the entire force of the establishment, unless we add the name of C. M. Keller, then a boy, who was the sweep, duster, porter, doorkeeper, tinkerer, and jack-of-all-trades. Of the four persons named, Mr. Keller alone survives. From the humble station he then filled he has risen, by his own exertions, to fortune and fame. As a lawyer and advocate in patent cases he stands in the front rank of the profession. Mr. Fenwick died many years ago. His son, an estimable young man, is at present employed in the Scientific American establishment.

In 1828, Thomas P. Jones was appointed to the Superintendency, and he was succeeded in 1830 by Dr. J. D. Craig, who remained in office till 1836. On July 4, 1836, a law was passed entirely remodeling the Office, and repealing the former acts. The law provided for a Commissioner, Chief Clerk, an Examiner, and three other clerks, one of whom must be a competent draughtsman and a machinist. There are other important provisions relating to the application for patents still in force, but which are not necessary to be repeated here. The Commissioner of Patents, unlike the heads of other bureaus, reports annually to Congress, and not to the Secretary.

On the 15th of December, 1836, fire was discovered in the building occupied by the Patent Office and Post Office. Mr. A. Kendall, Postmaster-General, with some assistance, was enabled to save records and documents from the Post Office, but so rapid were the flames that nothing was saved from the Patent Office.

Hon. M. Ruggles, Chairman of the Investigating Committee of the Senate, in his report, alluding to the destruction of models, drawings, and records, says:—"They not only embraced the whole history of American invention for half a century, but were the muniments of property of vast amount. The Patent Office contained also the largest and most interesting collection of models in the world."

Henry L. Ellsworth was the first Commissioner. He devoted himself with industry and ability to the organization of the Office. He also established the agricultural division, now become so useful and important. He remained in office seven years, and was succeeded by Mr. Edmund Burke, who bestowed much labor on the Office. Mr. Thomas Ewbank succeeded Mr. Burke, in 1849; his reports evince industry and ability. His successor was Mr. Silas H. Hodge, who remained in office but a short time.

Charles Mason was the next Commissioner, and, we may say without disparagement to his predecessors, brought to the Office eminent acquirements and ability. He was succeeded by the Hon. Joseph Holt, but the latter has recently been appointed Postmaster-General. Mr. Holt was a most popular and able Commissioner.

The first patent was issued in July, 1790; from that date to 1800, the average annual number issued was ninety-one; in 1820 it reached two hundred; and in 1830 it was five hundred and thirty-five. But a change of principle and rigid examination took place, which led to a reduction of the proportion of patents granted, as compared with the number of applications. In 1845, only 500 patents were granted. The Scientific American was started in this year, and its influence upon inventors soon began to be felt at the Patent Office. In 1855, there were four thousand four hundred and thirty-five applications. The number went on increasing, so that in 1858 five thousand three hundred and sixty-four applications were made.

From time to time, the clerical force has been increased, until now there are twelve Examiners, at a salary of $2,500 each; twelve Assistant-Examiners, at a salary of $1,800; a superintendent of the "Agricultural Department," a librarian, thirty-four clerks, machinists, &c.; still, so great is the business that this force is inadequate to the requirements of the Office.

For a portion of the foregoing facts relating to the early history of the Patent Office, we are indebted to Seth Elliot, Esq., of Washington, and to an article in the *National Recorder*, from the pen of A. Arnold, Esq.

Description of the New Offices of the "Scientific American."

We have presented elsewhere an account of the origin and continued growth of the Scientific American, during the fourteen years of its existence, which will doubtless be read with interest by all its friends. We will now proceed to describe the engravings which illustrate the present number.

About six years ago, having endured as long as we possibly could, the little "7 by 9" office at 128 Fulton street, and to meet the continued expansion of our business, we secured adjoining offices in the same building, and thereby quadrupled our space. At that time this seemed to us a somewhat perilous experiment; such, however, did not prove to be the case. The circulation of the Scientific American continued to increase, and our other business to augment; so much so, indeed, that for the last two or three years we found ourselves in cramped and uncomfortable quarters. The old hive became too small to comfortably accommodate our numerous staff of industrious bees, another change was inevitable; and, after examining various prominent points with a view to a new and more eligible location, on the 1st day of February last, we settled down in the new "Park Building," an external view of which adorns our front page. From its central position and combined advantages of excellent light and agreeable prospect, fronting as it does upon the City Hall Park, it is not too much to say that it is one of the finest business locations to be found in any city in the world. The building itself, as will be seen by reference to the engraving, is a magnificent structure running along 93 feet on Park-row, 144 feet on Beekman street, and 86 on Nassau street, affording the rare advantage of three street fronts. It adjoins the "*New York Daily Times* Building," which is, without exception, the most splendid and complete daily newspaper establishment in existence. These two buildings combined occupy the ground on which formerly stood the famous "Old Brick Church," with its adjoining conference and lecture-rooms and once sacred burial-ground—all now among "the things that were." Yielding to the demands of "Trade's unfeeling hand," the ancient church and its adjuncts have been torn down; the venerable pastor—the Rev. Dr. Gardiner Spring—who ministered at its altars for nearly fifty years, is now pastor of the new "Brick Church" on Murray Hill, a distance of five miles from this spot; and as for the graveyard, the skeletons of the "sacred dead" have been ruthlessly hustled about in premature resurrection and carted away.

To resume: We will suppose that that the pedestrian is coming up from the Battery, at the lower end of Broadway; he arrives at a point opposite to St. Paul's Church, the Astor House and Barnum's Museum, where Broadway is intersected by Park-row, which is the lower terminus and outlet for all the immense travel that pours through the Bowery, Chatham and Center streets. Standing at this intersecting point (where it is probable that more vehicles and persons pass in one hour that at any other place in the city), and looking to the northeast, the first object which strikes the eye is the "Park Building," which exhibits an impressive architecture, and is built of brown sandstone, firm and enduring. A prominent object upon this building is the elegant semi-circular sign of "MUNN & COMPANY." A few steps further on is No. 37 Park-row; and ascending a broad staircase the visitor finds himself in the main vestibule of the building, the most conspicuous feature of which is formed by the large portals giving entrance to the spacious offices occupied by the above firm. There are two street entrances to this structure, one at 37 Park-row, as above mentioned; the other at 145 Nassau street. The three small engravings represent the two street and the vestibule entrances above alluded to.

The large engraving shown on page 265 faithfully represents the interior view of the principal office of the Scientific American, and the American and Foreign Patent Agency of Munn & Company. The proprietors and the various persons employed in the establishment are represented as either engaging in conversation with inventors and other visitors, or in examining models, sketches and descriptions of new inventions, making drawings, writing specifications, and answering correspondence, or such other business as pertains to the patent department, or, as regards the Scientific American, engaged in the preparation of editorial and selected matter, proof or manuscript reading, translating from foreign journals, designing its illustrations, entering subscriptions, &c. At the eastern end of this apartment is a large library case containing about seven hundred volumes of valuable works upon scientific and mechanical subjects, patent jurisprudence, &c.; and which is daily increasing in size. Beyond this library case is located the composing-room, where the Scientific American is regularly set up by printers who have a pride in making it a model of typographic as well as artistic excellence. Adjacent to this room are the folding and general mailing apartment, ablution rooms, closets, &c. Here also are located the rooms of our artist, replete with every requisite necessary to the production of the excellent engravings which adorn the columns of our journal.

In the arrangement and fitting-up of our commodious offices we, of course, found it necessary to employ that invaluable member of society—the mechanic; and although the artizans were promptly paid for all their work, yet it was performed with so much satisfaction to ourselves that we feel it our duty to thank them individually.

The counters, desks, and railings throughout the principal office are constructed of black walnut, and present a solid and business-like appearance. They were manufactured and put up under the superintendence of James S.

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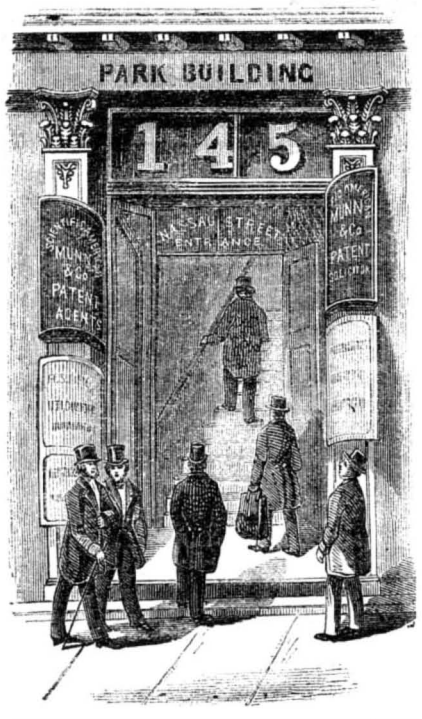
Cutter, of 386 East Ninth-street, whose firm have a reputation, as successful ship-joiners, second to no other in the country; examples of their skill may be seen in the construction of the *Adriatic* and other large ocean steamers. The mammoth signs which grace the three fronts of our offices were painted by

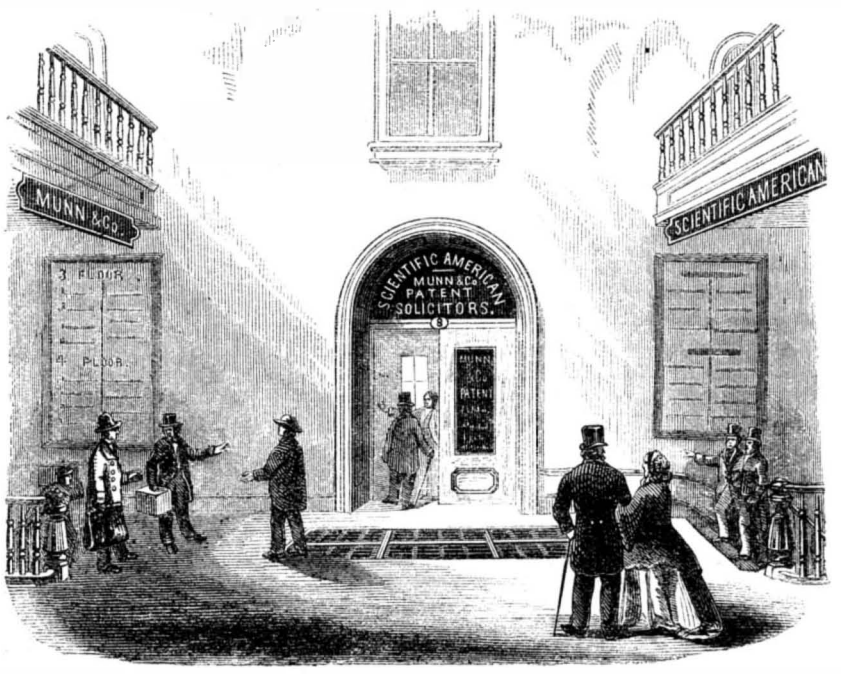
Ackerman & Miller, of 101 Nassau-street, and of whom it may safely be said there are no better sign-painters to be found anywhere. Their work speaks for itself on upwards of 250 feet of continuous sign-board running along the outer walls of our offices. The interior painting and graining was admirably executed by those knights of the brush, J. Henry, of 141 South Fourth-street, Brooklyn, (E. D.) and John Dillon, of 118 East Thirteenth-street, this city. The light carpentry was done by Saml. Cary, of 128 Fulton-street, (well-known here as "the only carpenter under



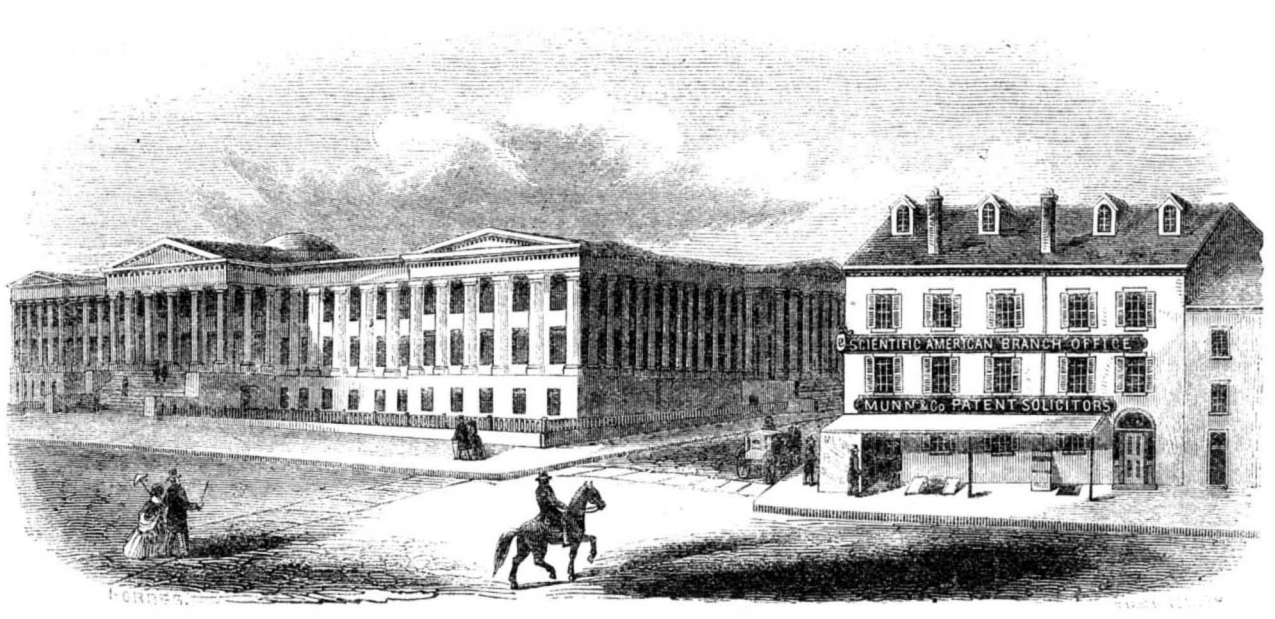
the *Sun*,") a good workman, and whose attempts at rhyme, albeit of the doggrel order, are proofs of the existence of a poetic fire of no ordinary kind. Our apartments are lighted naturally by twenty-six windows, but as artificial light is sometimes necessary, the latter is supplied by forty gas-burners fitted in simple but graceful gasoliers and branches, manufactured by Locke, Craigie & Co., 927 Broadway, who rank "No. 1" as gas-fitters and house-plumbers. We must also mention the names of Ogden & Mount, No. 608 Greenwich street, masons and plasterers, whose work is likewise creditable and satisfactory.

One of the most important considerations in the construction of stores, dwellings, or offices is a proper system of warming and ventilation, and yet how little attention is paid to this all-important subject! Some "old fogy" will contend that the best method of ventilating a room, under any circumstances, is to lower a window and let a blast of air blow through the opening; another will insist upon it that the door must be left open; and thus, perhaps, the thermometer varies from 50° to 70°, and *vice versa*, in as many minutes. Now, the careful reader of the SCIENTIFIC AMERICAN knows that neither of these is the true system of ventilation. Warming and ventilation should be so combined and carried on together as to produce a uniform temperature. It is not enough simply to open a flue for the escape of foul air, or to open a hole for the ingress of fresh air, neither is it considered healthy or agreeable—no matter how large the apartment—to have the confined atmosphere warmed and breathed over and over again continuously; the idea is revolting to every delicate sensibility. Well, what shall be done to obviate these serious difficulties? We will explain the system adopted in our offices. The warming is effected by steam, generated in a boiler in a vault under the sidewalk in Nassau-street, which is brought to our premises by leading pipes and distributed through two boxed coils of pipe, each containing six hundred feet. These coils are covered with patent iron screens of elaborate design. Cold air is brought from the exterior of the building through wooden troughs, and comes in contact with the heated coils through registers arranged immediately beneath them. By this means a large quantity of fresh air is capable of being constantly introduced into the room; this, however, could not be effectually carried on without the aid of flues sufficiently large to carry off the impure air by producing a constant current or draft through the room. We have provided six flues with two registers in each; one at the top for the escape of the rarified air, and the other to eject the foul air which lies nearest to the floor. This system ordinarily works well, as we calculate that, in our entire offices, containing over seventy-seven thousand cubic feet, the atmosphere is completely changed about once every hour. The warming and ventilating apparatus was supplied by J. O. Morse & Co., 76 John-street, this city, who have had long experience in fitting-up steam warming and ventilating apparatus for both public and private buildings.

For the transaction of any business requiring extraordinary secrecy, we have private consultation rooms, so that inventors and others can always feel the utmost confidence in our arrangements for guarding them from intrusion. We have also a very conveniently arranged private model room, which is represented by the view on the next page. Altogether, the above-described apartments combine to form the most complete as well as the most extensive establishment of the kind in the world.



VESTIBULE OF THE "SCIENTIFIC AMERICAN" OFFICE, NEW YORK.



THE AMERICAN PATENT OFFICE, AND BRANCH OFFICE OF THE "SCIENTIFIC AMERICAN," WASHINGTON.

An Atmospheric Dryer.

A substance capable of drying the walls and the atmosphere of damp houses is important and valuable. Such a substance, is the chloride of calcium. It is a salt which has such an affinity for moisture, that it attracts no less than 124 parts of water for every 100 parts of itself, from the atmosphere or other sources. It will even dry damp clothes, if placed near them in a room, and will remove the sweat from damp walls of buildings. As damp houses are generally unhealthy, causing chills and fevers, and rheumatism, it is a most useful substance, we believe, for the remedy of such evils. If placed in sheet iron pans in close proximity to damp walls, it soon becomes saturated with the moisture for which it has a great affinity, and as a consequence, the walls soon become dry. A moderately dry atmosphere is undoubtedly the best preservative in cold weather against sudden chills, and it is well known that a damp atmosphere feels more chilly than a dry one, even when the latter is several degrees lower in temperature. It is also very dangerous for any-one, and especially a person predisposed to lung diseases, to sleep in a damp apartment. Now to remedy this difficulty, take one pound of dry chloride of calcium, spread it upon an iron pan and it will soon absorb the moisture, and render the room safe and comfortable. In many cases it may thus be employed as an excellent sanatory agent, and it is for this reason we direct public attention to it, as the qualities which it possesses are not very generally known. It may also be used over and over again by driving off the water which it absorbs, by heating the iron pan containing it over a fire.

Sensation of Heat from Carbonic Acid.

An interesting communication on this subject was recently read before the Academy of Sciences, in Paris. All parts of the body when brought into contact with carbonic acid immediately feel an extraordinary sensation of heat, although the thermometer does not exhibit the least indication of it. A person placing his naked arm in a jar of it, immediately feels as if he had plunged his arm into an atmosphere thirty or forty degrees warmer than the air of the room. M. Boussingault, while he was in a trench of a sulphur mine in New Granada, was thrown into a violent perspiration by carbonic acid gas, while his thermometer gave no indication whatever of any increase of temperature. He also felt a severe pricking sensation in his eyes, from the effect of this gas, and the miners assured him that they all suffered from weakness, and that blindness was also a common result from a constant exposure to its influence.

TO GILD SILK.—Take a piece of silk and dip it into a solution of nitrate of silver and ammonia, in which it must be suffered to remain for about two hours. It is then taken out, exposed to a current of hydrogen gas, which reduces the nitrate and leaves the silver in a metallic state adhering to the fabric. This silvered surface can be easily covered with gold by the electro-plating process. Gilt and silvered lace are thus produced in France.

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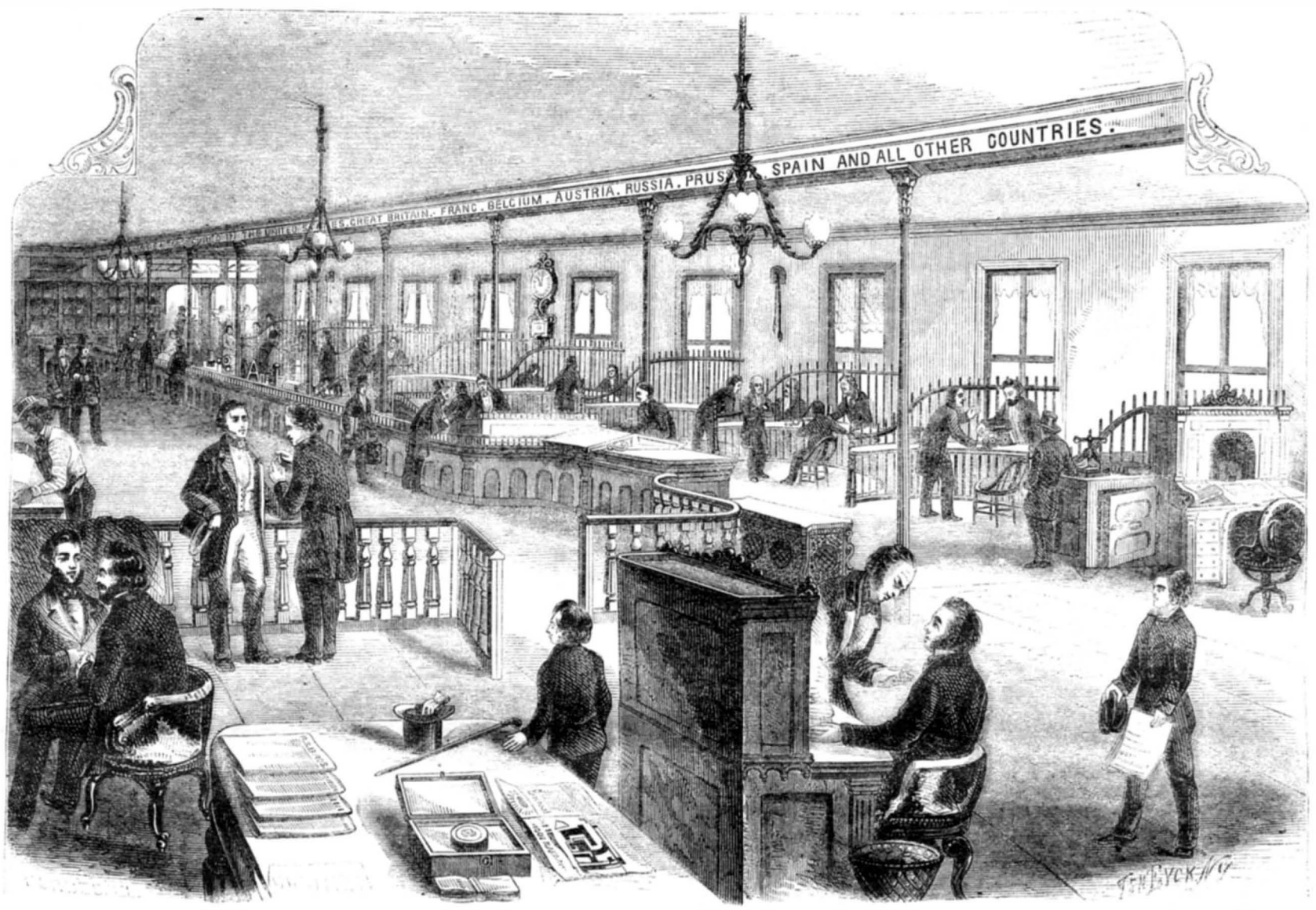
Extracting the Metal Aluminum.

Common clay is an oxyd of the metal aluminum, mixed with silica, and a little lime and iron. Until within a very few years, aluminum was only known to the chemist as a curious and rare metal obtained by very complicated and expensive processes. Recent improvements in chemical manipulations, however, have so much decreased the expense of obtaining it, that it is not one-tithe of the price at which it was sold five years ago. Still it is by no means a common or cheap metal yet, but from the recent discoveries of M. Corbelli, a French chemist, it is anticipated, that it will become quite common at no distant day, and that it may yet be employed as a substitute for tin in domestic utensils. M. Corbelli takes common clay and washes it first to extract all foreign matters such as stones, pieces of wood &c. It is then dried, and submitted to the action of concentrated sulphuric acid to remove the sulphate of iron; the residue is allowed to settle, is dried, then heated to about 600° Fah. Every three ounces of it is now mixed with six ounces of pulverized yellow prussiate of potash and five ounces of common salt, and placed in a crucible, which is raised to a glowing white heat in a furnace. After this it is taken out and the aluminum is found at the bottom of the crucible, in the form of a beautiful white button.

The Manchester *Guardian* states that a new cotton-gin, far superior to the American one, has lately been exhibited in that city, but it does not describe how it is constructed.



INTERIOR VIEW OF THE "SCIENTIFIC AMERICAN" AND PATENT AGENCY OFFICE, NEW YORK.

Glazed Waterproof Cloth.

A patent has lately been taken out in England for making waterproof glazed cloth to imitate leather, by the following process. About three ounces each of litharge, brown umber and hydro-protoxyd of manganese are subjected slowly to a boiling action in one gallon of linseed oil, for about three hours. It is now spread over the surface of twilled cotton cloth laid on a table, with a sponge, and then hung up in a warm room to dry. After this, it it subjected to a second coat of the same oil varnish, rendered black with lampblack. A small scraper is employed to put on the second coat as it is a little thicker than the first. If the varnish is desired to dry quick, it is thinned with turpentine. When the second coat is dry, the cloth is polished with pumice stone and water to render its surface smooth and close. Several coats of this varnish are put on in a similar manner, each being dried before the other is applied. The finishing or top varnish is made of linseed oil boiled with umber, litharge and Prussian blue, thinned with turpentine. The finishing operation is running the cloth between two engraved metal rollers. The patentee is B. E. G. De Brun, of France. The processes are nearly like those practised in America for making such cloth.

Franklinite Iron Ores and Sulphur.

The injurious effects of sulphur upon iron were pointed out by us, on page 230 of the present volume of the SCIENTIFIC AMERICAN, and a method for improving the coke employed in its manufacture was described. Since the publication of that article, we have received a communication from John Gardner, of this city, in which it is stated that a certain portion of Franklinite mixed with any common inferior iron, removes its sulphur and greatly improves its quality. Extensive veins of Franklinite ore are found in Sussex county, New Jersey, and are the only formation of the kind yet discovered in America or Europe.

THE MODEL-ROOM.

This ore is composed of a mixture of oxyds and sesqui-oxyds, in dark octahedral and dodecahedral crystals streaked dark reddish brown. There are 66 per cent peroxyd of iron, 16 sesqui-oxyd of manganese and 17 oxyd of zinc in the ore. It is free from sulphur and phosphates—impurities which render iron *cold* and *hot short*. At the Zinc Works near Newark, N. J., this ore is first smelted to obtain the volatile zinc; then the residue iron is smelted at a higher heat, and converted into a very hard pig-iron, which is excellent for rendering other brands hard to make spur wheels, shafts, and street pavements.

A series of experiments have lately been made at the works of the New Jersey Iron Company at Boontown, by mixing Franklinite ore in various proportions with different kinds of pig metal in the ordinary puddling furnace. The result of these was very favorable; the very worst *red* and *cold short* iron were rendered tough, fibrous and perfectly workable while hot. About 15 per cent of the Franklinite converted the most inferior iron into grade No. 1. The oxyd of zinc in this ore, it is stated, combines with the sulphur in the coal, or in other ore, at a high heat, and carries it off.

These valuable results obtained from mixing this ore with others, and with inferior pig metal, do not detract from the utility and usefulness of the improvement described on page 230, of the present volume of the SCIENTIFIC AMERICAN, for desulphurizing coke in the oven by the use of steam, because this process can be as easily carried out as the old system.

KEEP YOUR CONTRACTS.—Ruggles, Nourse & Co., of Boston, made a contract with Sargent & Foster, to manufacture apple-paring machines, and afterwards refused to comply with its terms. The case came to trial at Greenfield, Mass., the week before last, and the contracting parties paid $2,500 to compromise the matter.

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Patent Claims

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ARRANGEMENT FOR EXTINGUISHING FIRES IN STEAM VESSELS—Wm. Arthur, of Brooklyn, N. Y.: I claim the application of the waste water discharged from the air-pump raised to such hight as to flood the steam vessel with water for the purpose of extinguishing fire, as described, instead of discharging it, as usual, as waste water from the sides of the vessel.

MACHINE FOR WRINGING CLOTHES—S. A. Bailey, of New London, Conn.: I claim the employment of the cylindrical wooden spring-piece, a a, which is divided in two parts at its center, each part being slotted from the place of division, as shown, towards its outer end, the same being covered by a rubber cylinder, substantially in the manner and for the purpose specified.

CONDENSING COVERS—Abel H. Bartlett, of Spuyten Duyvil, N. Y: I claim the reservoir, I I and K, the pipes, F and E, when made and arranged substantially as and for the purposes specified.

APPARATUS FOR EXHIBITING STEREOSCOPIC PICTURES—Alex. Beckers, of New York City: I claim, First, placing the endless belt, chain, band, or apron, o o, in such a position as to form an acute or obtuse angle with the base, F, of the box or chamber of the apparatus, substantially as described.

Second, Placing the slides or frames holding the pictures in such a position as to form acute or obtuse angles with the endless belt or with the line of motion, substantially in the manner and for the purpose as described.

[This is a very good improvement, as it enables the operator to change the picture without much trouble, and to adjust the same in the center and at the same time the pictures can be brought to the proper focus by the spectator by turning a handle, so that each picture gives the best possible effect.]

METALLIC PISTON PACKING—Asa G. Bill, of Cuyahoga Falls, Ohio: I claim the arrangement of the arms, F F', on the central hub, B, of the piston, which act on a ring, E, and which are operated by means of a cam, G, substantially as and for the purpose set forth.

[This invention relates to pistons with a packing made of metallic rings, and consists in expanding those rings equally all round by means of two levers which are placed on the central hub of the piston, and act upon an inner ring that expands the packing. The levers are operated by a cam to which a ratchet wheel is attached, so that the rings can be gradually expanded without opening the piston.]

REEFING SAILS—Robt. B. Benson, of New York City: I have described my invention in connection with a topsail; but I do not wish to limit myself to that use only, as it is evident that the same general principles are also applicable to other sails.

I claim reefing the sail from the deck by the use of a supplementary foot-rope, or its equivalent, in combination with the auxiliary sheet and with the reefing lines, substantially in the manner and for the purposes set forth.

GAS BURNERS—Wm. Blake, of Boston, Mass.: I claim the arrangement of one or more conduit tubes, h h, in the burner or jet chamber, and with respect to the base of the said burner or jet-chamber and its inlet passage or passages, as described.

And in combination with the arrangement of the inlet conduit, or conduits, in such manner as to cause the gas to pass around in the expansion jet-chamber in one or more helical currents, I claim an annular or ring exit orifice, i, whereby the current or currents of gas may be thrown out of the burner in one or more helical streams, so as to equalize the hight of the flame and prevent it from flickering.

LIFE-BOAT—Mannervillette E. D. Brown, of Utica, N. Y.: I claim the construction of a life-boat with three recesses, substantially in the manner and form and for the purposes as specifically set forth.

Also, in combination with the foregoing, the making a groove in the rudder iron, and a peg in the rudder bolt, as above described, for the purpose as substantially set forth.

PUMPS—Wm. R. Brown, of Cleveland, Ohio: I am aware that pumps with an oscillating diaphragm are not new.

But I claim, first, the bi-cuspid valve, constructed substantially as described.

Second, I claim the arrangement of the bi-cuspid valve, in connection with the oscillating pump, the whole being constructed, arranged and operated substantially as set forth, for the purposes described.

HYDRANTS—Joel Bryant, of Brooklyn, N. Y.: I claim, first, in the construction and use of hydrants, the shaft, A, (whether hollow or solid, naked or encased,) when used for obtaining water, substantially as described and for the purposes set forth.

Secondly, And in connection with the said shaft, A, I claim the perforated open top and banded chamber-valve, B, constructed and operating substantially as described and for the purposes set forth.

PAPER-FOLDING MACHINES—Cyrus Chambers, Jr., of Philadelphia, Pa.: I do not desire to confine myself to the precise construction of the devices described, as several modifications of, or equivalents to the same, might be substituted, without departing from the main features of the invention.

But I claim, first, The register pins, e and e', so constructed and so attached to a paper-folding machine that they shall retain a position proper for the adjustment of the sheet, and yield by the movement of the latter.

Second, Adjusting one of the register pins, e', laterally and longitudinally, independently of the other pin, by means of the slides, n' and n', or their equivalents.

Third, Adjusting both pins simultaneously, both laterally and longitudinally, by the frames, X and Y, or their equivalents, the frame X being adjustable in one direction on the frame Y, and the latter, together with the frame X, being adjustable in another direction on the frame of the machine, or any attachment thereto.

Fourth, Any convenient number of rods, 1 2 and 3, terminating at one of the folding rollers, the ends of the rods passing into grooves in the said rollers, as and for the purpose specified.

Fifth, The adjustable stop, Z, with its inner edge of a curved or angular form, or otherwise, so constructed that the end of the folded edge only of the sheet shall be in contact with the said stop, for the purpose specified.

Sixth, The plunger, 6, with its adjustable plate, 8, in combination with the adjustable plate, 9, the said plate being arranged substantially as and for the purpose set forth.

Seventh, The curved wires, 15 and 16, or their equivalents, attached to the machine in any convenient manner, situated under the folding apparatus and adjacent to the trough, for the purpose specified.

Eighth, The combination of an alarm or indicating apparatus with a paper-folding machine, when the said indicator is operated by a sheet folded by the machine.

Ninth, Causing the sliding-board, O', to move along the trough with a diminution of friction as the folded sheets accumulate by means of the springs, 4, attached to the said board, and arranged to bear against the wedge-formed or inclined strips, 5, substantially as set forth and for the purpose specified.

POWER-LOOMS—Wm. H. Cheetham, Jr., of New York City; I claim, first, The employment to contain the shuttles which are inoperative of a frame, L, which is constructed to hold the said shuttles, arranged in proper order, in two tiers, and is applied in such a manner in front of either or each set of shuttle-boxes of the loom, as to be capable of receiving in one tier the shuttles which are required to be thrown out of operation, and of supplying from the other tier the proper shuttles to take their places, substantially as described.

Second, The box, M, applied and operating in combination with the shuttle-frame, L, substantially as and for the purposes specified.

Third, The pushers, m m n n and p p, applied and operating in combination with the shuttle-frame and box, M, substantially as and for the purpose described.

[A description of this invention will be found on another page.]

PUMPS—John B. Christian and Abner Beeler, of Mount Carroll, Ill.: We claim the construction, arrangement and combination of the pumping cylinders, G G, and cylinders, B B and I I, substantially in the manner and for the purpose specified.

VALVE ARRANGEMENT OF STEAM-ENGINES—Henry Clayton, of Tamaqua, Pa.: I do not claim the fitting of plates or blocks to the back of a slide valve, when they are intended to operate as cut-offs, for using the steam expansively in the cylinder.

But I claim, first, The employment, in combination with a slide valve, of one or more shutters applied and secured thereto, substantially as described, to vary and regulate the area of opening of the port or ports, as and for the purposes specified.

Second, Combining the two shutters, E E', (when two are employed) with the slide valve, by means of two screws, G G', one of whose stems passes through the other, which turns in a bearing on the back of the valve, and both of which stems pass through one end of the valve chest, the whole operating substantially as described.

Third, The valve, L, with its screwed stern, w, or its equivalent, and spring, y, arranged and applied substantially as described for the purpose set forth.

[One feature of this invention is more particularly intended for engines in which the resistance to the movement of the piston or force required to drive it is greater in one direction than in the other, as, for instance, the pumping engines of mines. This feature consists in the employment, in combination with a slide valve which is constructed with ports to admit the steam to the cylinder ports, of one or more adjustable shutters; that is to say, one shutter for either or each port so applied as to permit the area of opening of one or both ports to be varied or adjusted according to the amount of steam required to act upon the piston. By this means the many difficulties which have hitherto attended the raising of water from mines of great depth, and the use of pump rods of such enormous weight as are indispensable in such cases, is overcome. Another feature relates to the driving of slide valves applied to direct-action steam-engines by a small steam-engine provided for the purpose, and this feature consists in a certain mode of applying a valve to control the exhaust of the steam from the cylinder of such smaller engine for the purpose of making it form a cushion within the cylinder to regulate the length of stroke of the valve-driving piston.]

POLISHING RICE—Levi H. Colborn, of Baltimore, Md.: I claim the process of breaking the outer covering and moistening the inner coating of rice, and polishing the same, as set forth.

STEAM-ENGINES—Jacob A. Conover, of New York City: I claim, combining with the mechanism which connects the governor with the throttle valve, to regulate the admission of steam to the engine, substantially as described, a mechanism substantially such as described, which disconnects the throttle from the governor to permit it to be closed by an independent power, to shut off the steam from the engine, as described, and for the purpose set forth.

SHOE PEG MACHINE—Caleb Cook, of Sittsborough, N. H.: I claim, first, the disks, as described.

Second, The method of holding the peg wood together by the chain and drum and friction appliance, substantially as described.

Third, The method of holding the peg wood firmly in place by pressing it up against the guide-piece, D, by means of the spring, S, and the lever and posts, substantially as described.

Fourth, The method of relieving the upward pressure against D, for the purposes of the feed motion, by means of the system of levers, x x, substantially as shown and described.

MOLE PLOWS—Jacob Creamer and Thos. W. Ricards, of London, Ohio: We claim the arrangement of the beam, B, screw, H, wheel, d, and shaft, S, upon the sliding shoe, A a a b b, constructed and operating substantially as described.

PUMP—James E. Cronk, of Poughkeepsie, N. Y.: I do not claim to be the inventor of diaphragms or diaphragm pumps; I therefore disclaim, as such, the diaphragms, H and I, also the valves, J and K, the pipes, D and E, the rod, F, and the brake or lever, G.

I claim the peculiar form and arrangement of the diaphragms, H and I, with the shells, B and C, as described, and the ring, A, forming a chamber between them, with the discharge therefrom, as before mentioned, and for the uses and purposes expressed.

MANUFACTURE OF ARTIFICIAL LEATHER—Ephraim Cushman and John R. Cushman, of Amherst, Mass.: We claim, first, Holding the felt, H, up to the roll, F, for the purpose substantially set forth.

Second, Removing the adhering fibers from the surface of the felt, H, before it reaches the felt washer, by means of the scratcher, o, or its equivalent.

ICE-PITCHER—Chas. Dickinson and Wm. Bellamy, of Newark, N. J.: We do not claim, broadly, the making of double walled ice-pitchers, nor the interposition of a felt or woolen non-conductor between the walls.

But we claim, as an improved article of manufacture, an ice-pitcher provided between its walls with a hard non-conductor, so as to prevent the walls from indentation or fracture from within or without, while it also assists refrigeration, as shown and described.

[A good refrigerating pitcher, but much lighter than the ordinary one, and extremely durable, is made in the method described in the claim.]

GRATE BARS—James Easterly, of Albany, N. Y.: I claim the described corrugated grate bar, constructed substantially in the manner and for the purpose specified.

STEAM BOILERS—E. M. Ivens, of New Orleans, La.: I claim the arrangement of a cylindrical or annular water drum (having a forced circulation) within the flue of an ordinary flue boiler, in the manner and for the purposes set forth.

BOOT TREES—Winthrop B. Fay and Russell W. Collier, of Upton, Mass.: We are aware that adjustable lasts and foot-pieces of boot trees have been arranged in various ways in order to modify their shape or form, so that they may be fitted perfectly in boots, and we do not claim, broadly, such device, irrespective of the particular construction and arrangement shown and described, for effecting the purpose.

But we claim the elastic plates, B B, attached to the sides of the foot-piece, A, in connection with the adjustable bars, C C, arranged to operate substantially as and for the purpose set forth.

[This invention consists in having the foot-piece of the tree constructed in a novel way, whereby the foot-piece is rendered capable of being expanded laterally and also adjusted at the instep, so that the foot-piece may be adjusted to the foot of the boot and made to conform perfectly to it.]

BILLIARD TABLE—Fritz Fedderke, of New York City: I claim constructing a billiard which may be changed from an American into a French billiard by effecting a perfect continuation of the cushion throughout the whole length of the same by means of cushion pieces, D and E, inserted between and fastened to the jaws by a handle, N, operating upon a fork lever, L, latches or bolts, R, and springs, S, and reconverting the French billiard thus formed into an American billiard by renewing the said cushion pieces by the same means, substantially as described.

WATER-WHEELS—Josiah B. Fitch, of New York City: I claim the combination of the wheels, D, one or more, and gate, F, arranged relatively with each other and placed within a proper case, which is fitted within a penstock or flume, A, substantially as and for the purposes set forth.

[The gate of the penstock or flume is placed in a certain relative position with the wheel, whereby the wheel is rendered more efficient than usual in as much as the water is permitted to pass in a direct line, or entirely unobstructed, on the wheel and in a column, the diameter of which will be at all times equal to that of the wheel, irrespective of the distance the gate may be open and of the rapidity of the discharge of the water.]

CLOTHES' FRAME—H. M. Fletcher, of Newport, N. H.: I claim, first, The plank, A, in combination with the plank, B, the bearings, M and N, and the sectional shafts, C D, constructed and operating substantially as described.

Second, The sectional shaft, C D, constructed and operating substantially as described.

Third, The reel frame composed of the parts, E F F' F'' F''', G G' G'' G''', and H H' H'' H''', in combination with the sectional shaft, C D, the plank, A, the plank, B, the bearings, M and N, with their corresponding mortises, m and n, the spring, K, the pulley, O, and the cord, L, constructed and operating substantially as described.

MECHANISM FOR OBTAINING ROTARY MOTION FROM RECIPROCATING RECTILINEAR MOTION—Alven K. Gilmore, of Bath, Me.: I claim the combination of the bifurcated slider, A, two pulley sectors, C D, their double pawls, G H, or mechanical equivalents therefor, and the wheel, F, the whole being arranged, connected, applied to one shaft, E, and made to operate substantially in manner and for the purpose set forth.

I also claim, in combination with the pawls, G H, and their disk wheels, I I, the disk-moving mechanism consisting of the levers, m m, bent arms, o o, sliders, p p, forked arms, 5 3, slide rod, t, and shifting lever, u, combined and arranged substantially as explained.

I also claim in combination with each double pawl, G H, and the shaft, E, a disk or wheel, I, having studs or stops, i k, and being applied to the shaft and friction wheel, l, substantially as and for the purpose described.

FIRE ESCAPE—J. M. Hancock, of Lansing, Iowa: I do not intend to confine myself to the precise mode of winding up the machine, as it may be varied, and in fact must be, when the form of the case or piece of furniture in which it is enclosed is changed, nor do I confine myself to the materials of which the basket is composed, as in changing the case, the materials of the basket must be changed also.

I am aware that the use of the flying pinion as a retarding power is not new, therefore, separately considered I do not claim them.

But I claim the flying pinions, E E, in combination with the detent, x, the driving wheel, D, the spring-brake, M, and block brake, y, as substantially described and for the purpose set forth.

I also claim in combination with the described piece of mechanism, the table, or its equivalent, as substantially described and for the purpose set forth.

SHIP PROPELLING APPARATUS—A. E. Harding, of Middletown, Ohio: I claim, first, The rollers, g', arranged and operating substantially as described.

Second, I claim the arrangement and combination of the propeller chambers, B B, air tubes, d d, openings, c, chambers, E E, pistons, f h f h, gates, j j, pipe, p, and propellers, g g', all arranged substantially as described for the purposes set forth.

STUMP EXTRACTOR—G. D. Harris, of Fitchburg, Mass.: I claim, as an improved article of manufacture, a stump puller having a pulley, N, and two conical shafts, D E, one shaft, D, for winding the chain with a variable speed, the other shaft, E, for correspondingly winding the rope, M, and otherwise constructed as shown and described.

[By this machine a progressive power is obtained in a simple manner, and stumps extracted very expeditiously.]

RENDERING FRICTION MATCHES WATERPROOF—L. J. Henry, (assignor to Danl. Benrimo), of New York City: I claim rendering friction matches partially or entirely waterproof by the application of the melted coating in the manner and for the purpose substantially as specified.

ROTARY ENGINE—Daniel Hughes, of Rochester, N. Y.: I claim the oscillating shoes, G G', applied and operating in combination with the oscillating abutments and the rotating piston hub, substantially as and for the purposes described.

And I also claim the disks, N N', having openings, g g, and sockets, d d, applied in combination with the rotary piston hub, the cylinder heads, and the main shaft, substantially as and for the purposes described.

[This invention consists, firstly, in the employment in combination with oscillating abutments of oscillating shoes, so applied as to be operated upon by the pressure of the steam or other fluid which moves or is moved by the engine for the purpose of preventing any leakage between such abutments and the piston hub. It further consists in a novel construction of and mode of applying metallic disks for the purpose of preventing any leakage between the hub and hubs.]

TREATMENT OF PEAT FOR COMPOSTING—J. Burrows Hyde, of Newark, N. J.: I claim the use of peaty matter as a basis for admixture with other richer manures, when said peaty matter shall have been dried and finely powdered, previous to admixture, as set forth.

ROTATING SHOT AND SHELLS—J. B. Hyde, of Newark, N. J.: I claim the use of tangential holes, bored from the outer surface into the solid portion of the front end of the shot, for receiving the rotating composition.

I also claim the use of the adjustable tubes or cases of rotating composition.

MOLDS FOR FORMING ARTIFICIAL TEETH—A. Lewenberg, of New York City: I claim a divided socket, or holder, receiving the pins of artificial teeth, so fitted as to be removable from said pins, prior to taking the teeth out of the mold for the purposes and as specified.

EXTENSION TABLES—Anthony Isky, of Lancaster, Pa.: I claim the arrangement of the pivoted cross slats, F, affixed on each side of the central partition, I, in the table frame, H H', the double wings, B C, when hinged, so that the wing, c, may be turned over on to the slats, F, when extended, as also the adjustment and combination of the several parts described and for the purpose specified.

TANNING—Hiram Johnson, of Farmersville, N. Y.: I claim the use of a solution of quick lime as a tanning ingredient to be used in connection with any of the tannic acids or tanning ingredients now in general use, not confining myself however to the exact proportions, as specified.

LATH CLUTCH—Wm. Johnson, of Lambertville, N. J.: I do not claim the construction or form, or proportion, of all or any of the parts of the chuck described or mentioned.

But I claim the combination of toothed wheels and arms, actuated by a single screw shaft, so as always to present three several points of pressure centrally upon the body to be turned or wrought, substantially as described and set forth.

METALLIC COTTON BANDS—Richd. Lewis, of Charleston, S. C.: I claim in the device, plates A B, with slots, c d, projections, E E, opening, f, legs, g g, and shoulders, h h, in combination, constructed, united and operated in the manner substantially as described and for the purpose set forth.

METALLIC COTTON BANDS—Richd. Lewis, of Charleston, S. C.: I claim the plates, A B, opening, E, projections, f f, shoulders, c c, and d d, in combination, constructed, united and operated in the manner substantially as described and for the purpose set forth.

MODE OF ATTACHING HORSES TO VEHICLES—E. D. Lockwood, of Penfield, N. Y.: I am aware that horse collars have been constructed with a breast strap and back strap, arranged similarly to the straps, B C, shown, and I do not claim, separately and broadly, said straps, as a horse collar.

But I claim attaching the strap, B, to the thills, A A, by means of the perforated plate, c, and the pins, f, placed in the recesses, e, of the thills, and having wide and narrow parts, 1 2, substantially as described.

[The object of this invention is to attach the animal to the thills by a very simple means, dispensing with the whiffle-tree, traces, and the loops and tugs hitherto employed, and thereby considerably reducing the expense of ordinary harness. The invention consists in having a strap pass round the breast of the animal, its ends being attached in a novel way to the thills, and having a strap pass around the back of the animal, the ends of the latter strap being attached to the sides of the former one. The usual breeching and hold-back straps being employed and connected to the shafts in the usual way. This is a useful invention and simplifies harness very much, for which we have no doubt the animals will be thankful.]

WATER-TIGHT DOORS FOR MARINER SAFES, LOCKERS, &c.—M. Ludlum, of Fair Haven, Vt.: What is claimed is the double door, A C, constructed and operating substantially as described, in combination with the outer or surrounding framework, B, and independent interior frame, E, or its equivalent, essentially as and for the purpose set forth.

REFRIGERATORS—Jacob Marx, of New York City: I claim the combination and arrangement of ice chamber, A, the gutter, D, pipe, E, the water-tank, C, and provision chamber, B, substantially as and for the purpose specified.

INDIA-RUBBER SOLES FOR BOOTS AND SHOES—Charles McBurney, of Roxbury, Mass.: I do not claim making a sole for boots and shoes of vulcanized india-rubber, neither do I claim attaching such sole to the boot by means of pegs.

But I claim a sole made of vulcanized india-rubber, and having the holes for the reception of the pegs, formed in the mold in which it is vulcanized, as set forth.

SANDALS—Wm. McConnell, of Philadelphia, Pa.: I am aware that clogs have been made with soles made of two separate blocks hinged together, as shown in the English patent of Jos. Shüller, May 6, 1826. I therefore do not claim, broadly, such a device, neither do I claim a slide for adjusting the distance between the heel and the toe of the sandal.

But I limit my claim to a sandal, consisting of three blocks, B B 1 and B 2, of wood, or other suitable material, attached to an elastic metal strip, A, when the said blocks are so situated in respect to each other, that one shall coincide with the toes, the other with the ball, and the third with the heel of the wearer's foot, as and for the purpose specified.

SEEDING MACHINES—O. H. Melendy, of Delhi, Iowa: I do not claim, broadly, the employment or use of a reciprocating seed slide, E, for they are well known and in common use.

But I claim the levers, F H, slides, E G, and projections, g, on the wheel, B', in connection with the bars, I K O P, connected by the links, j j', the whole being arranged substantially as and for the purpose set forth.

[The seed-distributing slide is placed completely under the control of the operator, and the shares clear or pass over obstructions that may lie in the path of this seeding machine.]

STEAM BOILERS—Gregor Menzel, of Milwaukie, Wis.: I do not claim, irrespective of the arrangement I have described, the employment of ascending and descending tubes, which may be seen in the withdrawn applications of Thomas Greer, October, 1847, and Thomas E. Warren, July 19, 1852, but the arrangement of the tubes and parts therewith connected in the above examples is quite different from mine.

I claim, first, The arrangement in an upright cylindrical boiler of a fire-box, D, and series of ascending tubes, E, a smoke-box, F, a single or double circle of descending tubes, G, a flue, H, and flue, I, in combination with jacket N, without or with horizontal steam dome, L, as shown and described.

I do not claim, irrespective, a circulation pipe for an upright boiler.

But I claim the arrangement of my circulation pipes, K, which hang loose and inside the cylinder, m, openings, T, and steam-dome, L, in the manner shown and described.

LAMPS—A. H. North, of Hartford, Conn.: I claim the rotating plate, A, with the elongated scroll teeth, in combination with the vertical gears, E, and the vertical actuating gear, D, in the manner and for the purpose substantially as described.

MACHINE FOR MAKING PATTERNS FOR COG-WHEELS, &c—Washington Obenchain, of Logansport, Ind.: I claim, first, The mode of adjusting the arm, E, vertically by means of screw, M, in combination with the upright, D, which is also adjustable about a vertical axis, as and for the purposes set forth.

Second, The track frame, F, when adjustable laterally for the purpose of giving taper to the piece cut.

Third, The arrangement and devices for adjusting the cutter, I, as and for the purposes set forth.

PUMPS—J. K. O'Neil, of Kingston, N. Y.: I claim the combination and arrangement of the vibratory arm, p o, rod, q, stem, m, guide, n, and spring, r, for controlling the valve, l, from the top of the well, substantially as described.

I also claim constructing the pistons, o o, with raised rims, w w, and guiding edges, h h, upon the heads thereof in combination with the packing, y, coiled springs, z z, and central disk, u, arranged in the manner and for the purposes set forth.

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ROPE MACHINERY—J. W. Peer, of Troy, N. Y.: claim conducting the strands from their bobbins round the exterior of one side of the flyer and from thence over guide rods, f f, or their equivalents, to and through a hole or guide, c, on the opposite side of the flyer, substantially as and for the purpose set forth.

[A novel and very simple method of conducting the strands from their bobbins to their respective flyer heads constitutes this invention, whereby they are caused to draw with nearly equal freedom and hence to have nearly the same tension whether being supplied from the middle of or near the ends of their bobbins. There is also an improvement in the laying block by which the friction upon the several strands in case of variations in their sizes, is made more nearly uniform than it is in the ordinary laying block and the tightness of every portion of the several strands in the rope made more nearly equal.]

PENCIL CASES—D. A. Peirce, of East Greenwich, R. I.: I claim constructing the end of the tube, F, with a screw thread, and forming the row of teeth therein in the manner substantially as described and for the purposes set forth.

ARRANGEMENT OF MACHINERY FOR OPERATING CORN SHELLERS SEPARATELY OR JOINTLY WITH A FAN OR CUTTERS—W. L. Potter, of Clifton Park, N. Y.: I do not limit myself to the precise construction arrangement and proportion of the parts shown in the drawings. Nor do I claim, broadly, the employment of a winnower, corn sheller and straw-cutter complete in one frame.

I claim the arrangement of the fan, E E', and the gearing, l, in relation to the shafts, C and I, so as to connect and disconnect the same, for the purpose of allowing either the fan or the cutting apparatus to be operated with the sheller, or the sheller to be worked independently of either, substantially in the manner described.

PUMP—John Powers, of New York City: I claim arranging two forcing valvular pistons back to back in line with each other, and combining them by means of a piston rod, or other connection common to both, with the arm of the pump brake, at a point between the two pistons substantially as set forth, so that both may be operated by the same arm of the pump brake

I also claim combiuing the pump brake with the duplex pump-barrel, by means of an air-vessel, constructed and located substantially as set forth, so that it forms a secure fulcrum for the brake, and affords a passage through it, for the arm of the brake to the piston rod, upon which it acts.

STEAM BOILERS—Samuel Pierce, of Troy, N. Y.: I do not claim as of my invention, the application of air in numerous small jets, by means of perforated tubes in the fire-chamber of steam boilers.

Nor do I wish to limit my claim to any precise position of the tubes within the fire-chamber, so long as they are placed above the fire to discharge the jets of air among the gases involved where they are at an intense heat.

Nor do I claim the use of hollow stay bolts for connecting tubes or other vessels. Nor do I claim the circulation of water to prevent metal from being injured by the action of intense heat.

Nor do I claim a series of water tubes, embodying air tubes when such series are made to constitute a water table, as shown in the application of the patent granted Dec. 22nd, 1859, to B. L. Griffith.

But I claim the employment of air tubes placed within the fire-chamber of a steam boiler, substantially as described, in combination with the surrounding water tubes, connected at both ends with the water spaces of the boiler, and connected with the inner air-tubes by means of hollow stay-bolts when the air and water tubes so combined are arranged substantially as specified and for purpose set forth.

MACHINERY FOR LAYING ROPE—G. W. Pitman and W. C. Boone, of Bushwick, N. Y.: We do not claim the arrangement of the flyers, with their axes in the same line, nor the connection of flyers so arranged. Nor do we claim, in combination with such arrangement, applying one of the bobbins without a flyer, like the bobbin C''.

But we claim the laying and unlaying of the strands c' c'', to forward the twist, as described.

And we further claim the ring guide, i', applied in combination with the bobbin C'', to the nearest flyer, substantially as and for the purpose set forth.

[The present invention relates to that description of rope-laying machine whose strand flyers or two or more of them are arranged with their axes in line with each other. It consists, firstly, in effecting a connection between any two adjacent flyers, by means of a central tube or journal, and also in a guide ring applied to that one of a series of so combined flyers which is furthest from the laying block for the purpose of carrying forward towards the laying block, the twist which is given by the revolution of the flyer from a spool which turns in fixed bearings outside of the flyers.]

CHEESE CUTTER—T. H. Pollock and Daniel Bliven, of Greenville, Conn.: We claim the platform, A, being provided with a rim, a, and with projection, J, in combination with the turn-table, D, or its equivalent to operate substantially as and for the purpose specified.

And we do also claim the arrangement of the knife, E*, the cutting edge of which makes an obtuse angle with the rack to which it is attached, and operates in combination with slots, p and o, substantially in the manner specified.

[This is an excellent device for cutting cheese in sections.]

RAIL-SPLICING CHAIRS—R. S. Potter, of Chicago, Ill.: I do not claim, broadly, a clamp wedge, nor the form of the chairs.

But I claim a clamp wedge operated by the same bolts as a clamp and as a wedge acting upon each rail equally, in combination with the chair guard, 6, substantially as shown and specified.

MACHINE FOR POINTING AND SPLITTING SHOE-PEGS—Jesse Reed, of Marshfield, Mass.: I claim, first, A traversing carriage, M, in combination with a revolving table, R, so arranged that after a series of cuts has been made in one direction, the table may be revolved 90 degrees preparatory to making the second series of cuts.

Second, I claim the device for traversing and returning the carriage consisting of the following parts, or their substantial equivalents, in combination, viz: the screw shafts, U and V, the block, X, the lever, Z, with its spring, C2, and tripping arrangement, f' B2 A2, the whole operating in the manner substantially set forth.

Third, I claim the device for automatically revolving the table, R, consisting of the spring, l, and the parts, m n o p and k, or their equivalents, operating in the manner substantially as described.

Fourth, I claim the grooving and splitting irons, e, and g, traversing the block, as set forth, in combination with the holders, D2, or their equivalents, operating in the manner substantially as described.

Fifth, I claim feeding the block, S, by means of the continuous revolution of a screw operating through a spring, X, as described so that when the block is released, the feed is instantly given to it in the manner substantially as set forth.

KEEPING AIR-SPRINGS SUPPLIED WITH AIR—S. G. Randall, of Middlebury, Vt.: I claim combining an air-spring and an air-pump, or its equivalent, with a car or carriage, or other moving conveyance, as that the motion of said car, carriage, or other conveyance, shall through such air-supplier, keep the air-springs supplied with air substantially as set forth,

AIR-ENGINES—B. F. Rice, of Clinton, Mass.: I claim giving to the plungers or piston of air-engines a rotary motion, for the reasons specified.

I also claim giving to the plungers or pistons of air-engines a rotary motion, in combination with the means employed for keeping the entire surfaces of the plungers or pistons continually lubricated, in the manner and form and for the purposes substantially as set forth.

BANDS FOR BINDING GRAIN, HEMP, &C—Andrew Ralston, of West Middletown, Pa.: I claim furnishing cords or straps, used for binding grain, hemp, &c., &c., with a T shaped clasp, as described and for the purpose set forth.

CAR COUPLINGS—J. C. Ransier, of Lyons, N. Y.: I lay no claim to bars, H and H, bumper plates, I, link, G, Fig. 1, sill, L, nor bolts J, as my invention, as the same is now in general use.

But I claim, first, clevis, B, in connection with fulcrum, E, key bolt, D, for the purpose of a connecting link between railroad cars, so constructed and arranged that said clevis or link will encircle and revolve up and down, and sway to the right and left over the outside of bumper plate or plates, I, and the body of the bumper, and otherwise arranged and constructed for the purpose as substantially set forth and described.

Second, I also claim revolving arms, A A, or their equivalents in combination with dog, o, as seen in right hand plan, Fig. 1, for the purpose of aiding in casting off the opposite clevis from hook, C, in the process of disconnecting or uncoupling; also for a rest for and in aiding in throwing clevis, B, on the same bumper forward from its upright position, in the process of effecting a coupling, as substantially set forth and described.

Third, I claim hook, C, or its mechanical equivalent, placed on top of the upper bar, H, and in rear of the top shoulder of fulcrum, E, for the purpose of receiving the curved point of the opposite clevis, B, in the process of coupling. I do not intend to confine myself to rod or shaft, N, for the purpose of turning dog, o, against the shoulder of arms, A A, for the purpose of raising the points of said arms, in the process of casting off the opposite clevis in the process of uncoupling as described, as other well known modes of screw or lever power can be applied with equal effect.

CAPSTAN—Jesse Reed, of Marshfield, Mass.; I do not claim a single stationary incline or screw thread, for the purpose of fleeting a cable or rope upon a windlass or capstan.

But I claim the adjustable detached fleeter, operating as set forth.

Second, I claim the employment of the double inclines, t, whereby I am enabled to fleet the cable, whatever may be the direction in which the capstan is turned.

PRINTER'S TYPE CASES—T. N. Rooker, of New York City: I claim the described method of arranging the compartments of a type case, that is to say, placing at the side of the lower case character its corresponding upper case character, for the purposes and in the manner substantially as set forth.

PEGGING MACHINE—James Sangster and A. W. Sangster, of Buffalo, N. Y.: We claim, first, The combination of the wheels, P and Q, the rachet, C, and the peg wood, L, with the awl, peg driver, the knife, F, and the shoulder, J2, when the same are arranged substantially in the manner specified.

Second, Placing the adjustable wheel, R, in arrangement with those parts which form the subject of the first claim, for the purpose of regulating the distance at which the pegs are to be driven from the edge of the leather or material pegged substantially as set forth.

MACHINE FOR MAKING HOES—Henry Sauerbier, of Newark, N. J.: I do not claim any of the parts of the machine, separately.

But I claim the cam lever, A, and the dies, c and d, in combination with the lever, B, the loose pin, 7, and the clamp, e, constructed and arranged substantially in the manner and for the purpose specified.

UMBRELLAS—L. K. Selden of Haddam, Conn.: I claim as a new and improved article of manufacture, an umbrella or parasol, having its frame constructed of a rim, A, and stretcher, C, formed of arms, or bars, a a', pivoted and connected together as shown, in connection with the tube, E, and rod, F, arranged as described.

[The frame of this device is formed of a series of expanding or jointed bars, arranged so that an umbrella of ample dimension is capable of being folded in a very small compass, and also rendered extremely portable, strong and durable.]

RUBBER-HEAD FOR LEAD PENCILS—W. W. Shaw, of Troy, N. Y.: I claim as an improved article of manufacture, a head, A, for lead pencils, made of rubber, in the manner shown and described.

[By a combination of an ink eraser and pencil, a very convenient drawing tool is obtained.]

BREECH-LOADING FIRE-ARM—T. E Shull, of Millersburgh, Pa.: I claim, first, The combination with a fire-arm constructed with a stationary and closed breech or breech piece, and with an opening in the barrel to receive the cartridge of a hinged flap door or lid which opens and closes the cartridge charging aperture substantially as and for the purposes set forth.

Second, The combination with a hinged flap door or lid, of a sliding collar or sleeve, so that the operation of sliding the collar back, will open the flap door or lid, and the operation of moving it forward, will close and lock the same substantially as and for the purposes set forth.

PORTFOLIO—H. T. Sisson, of Providence, R. I.: I claim the combination of the barrel, A, shaft, B, hooks or teeth, b b, a spring or springs, d d, spring latch, f, and stop, g, the whole constructed and arranged substantially as and for the purposes set forth.

[This is a novel apparatus, which may be applied in the back of a portfolio or attached to a suitable handle for the purpose of holding and securing music sheets, pamphlets, or papers of any kind therein.]

SIDE-WHEELS STEAMERS—A. M. Sprague, of Mobile, Ala.: I claim raising the after guards next adjacent to the wheel, about the deck and hull of the boat, and also above the forward guard, substantially as described, so as to leave a clear water-way beneath the after guard, and immediately abaft of the wheel for the purpose as set forth.

HARVESTERS—W. S. Stetson, of Baltimore, Md.: I claim giving to the frame, H, a back and forth motion upon the axle-tree, B, said frame supporting at its rear end, the axis of the driving pinion, K, all in the manner and for the purpose as set forth.

I claim the vibrating frame, connected with the rear end of frame, H, and having its center of motion coincident with the axis of pinion, K, as set forth.

I claim the combination of the shoe, X, with the vibrating frame, R, by means of the hinge bolt, y, arranged and attached to the rear of said frame, in the manner set forth, by which combination the knife-bar is made self-adjustable.

I claim connecting the adjusting lever, Z, with the platform, C, and sliding frame, H, as set forth.

I claim horsing the knife over the platform, or in a position at right angles, or nearly so, to the axle, B, by the two movements, substantially as described.

SIRUP-CHARGING APPARATUS—W. C. Turner, of St. Louis, Mo.: I claim the construction of a machine, so arranged that a uniform and definite measure of any liquid may be supplied to a bottle, or any other vessel before, during or after filling the same with soda, mineral, or water surcharged with carbonic acid gas or other gas, or any other liquid, by means of pump air vessel, safety valve, charging valve or charger, constructed and applied, substantially as described in specification

COOKING RANGES—H. K. Stimpson, of Boston, Mass.: I claim the combination of the flanges or projections, attached to the side plates of the boiler chambers with the grate constructed so as to admit air to the fuel from below, and hung so as to allow of its free play, and made narrower than the fire chamber, as described, whereby the contraction and expansion of the grate is prevented from injuriously affecting the remaining portion of the range or stove.

Second, The use of the sliding covers, q q, in combination with the top plate arranged to operate substantially as described.

MANUFACTURE OF RESIN SOAP—Stephen Strung, of Birmingham, Pa.: I claim the admixture, compounding and preparing of the ingredients named, in proportions specified and for the purpose set forth.

MACHINE FOR DRESSING MILLSTONES—Samuel Teague, of Newton, Ohio: I do not claim the sliding frame levers and picks, separately, considered.

But I claim the adjustable braces, f, when combined with the picks, a, sliding frame, A, and levers, l, constructed and operated in the manner set forth for the purpose specified.

MANUFACTURE OF IRON—Alfred Thomas, of Howard Iron Works, Pa.: I claim the mixing of charcoal and anthracite metal and forge cinder, in the proportion substantially as stated, and working them together, in the puddling or boiling process, or in a refinery fire, for the purpose of making a superior quality of iron, as stated.

BEDSTEAD—Pelatiah Thompson, of Springfield, Ohio: I claim the combination of the double series of helical springs, d, with the removable holder strips, E, and series of cross slats, c, operating with their steadying pins, e, the whole arranged to operate as and for the purposes specified.

In combination with the series of slats, c, operating with a series of springs, as specified, and the removable holder strip, E, I claim the series of guiding blocks, b, when two or more are extended down, to prevent the removable strips, E, from jumping, as described.

MACHINE FOR JOINTING STAVES—Jonathan Troop, of Sainclairville, N. Y.: I do not claim, separately, a rotating cutter wheel, c, for such device has been previously used for similar or analogous purposes.

But I claim, first, The vibrating frame, F, provided with the clamp bars, h h, and stave-adjusting bars, m, and used in connection with the gauge screws, a', arranged substantially as shown, for the purpose of properly presenting the staves to the cutters.

Second, The combination of the above named parts with the rotating cutter wheel, c, arranged for joint operation, substantially as and for the purpose set forth.

[A rotary adjustable cutter wheel, a vibrating frame provided with a clamp and a firm bed, are employed in this invention, and used in connection with an adjusting device whereby staves of varying widths may be jointed very expeditiously and in a perfect manner.]

MACHINE FOR CUTTING SOLES FOR BOOTS AND SHOES—Albert Warren, of Jefferson, Ohio: I claim a series of pieces covering the bottom of the box like c c, separated by a straight line through the center, together with the series of pieces, like B C, with the knife, J, held securely between their crooked edges, and arranged alternately, with a toe to the right and left, and covered by the forms, D D D, &c., in the manner described, when these devices are combined with the slide, P, arraged and operating as specified.

EGG PAN—Nathaniel Waterman, of Boston, Mass.: I claim the new or improved manufacture of baking pan, or arrangement of cups, and a handle at each end of the series, all connected together and cast or founded in one solid piece of metal and with heat passages between the cups, substantially as stated.

FASTENING IRON BANDS ON COTTON BALES—C. G. Wells, of Galveston, Texas: I claim the application of the washer, C, and the mode of fastening the end of the band with it as mentioned above, and thus expediting the operation of baling and compressing bales of cotton, or merchandize, and retaining them securely in their compressed form.

VALVE MOTION OF OSCILLATING STEAM ENGINES—G. D. West, of Brandywine Hundred, Del., (assignor P. W. J. Neilus,) of New York City: I claim the combination of arch, d, and lever, c, for the purpose and in the manner substantially as set forth.

BURNISHING MACHINE—L. S. White, of Waterbury, Conn.: I claim, first, So applying two burnishers, in a burnishing machine, that they shall operate simultaneously, at opposite points, on opposite sides of the article or piece of work to be burnished, and burnish both sides at once; and that during such operation, each shall serve to support the article or piece of work, against the pressure of the other, substantially as set forth.

Second, The combination of the reciprocating and partially rotating shaft, K, and yoke, D, or their equivalent, and the tool stock, R, by means of the rods, S S, the arm, k, rod, l, and arm, m, the whole operating substantially as and for the purposes specified.

Third, The sliding bars, n n' p, applied in combination with the tool stock carriage to operate substantially as and for the purposes specified.

[This invention consists in so applying two burnishers in a bunishing machine, that the two shall operate simultaneously at opposite points on opposite sides of the article or piece of work to be burnished, and that during such operation each shall serve to support the article or piece of work against the pressure of the other one. The stock which contains the burnishers will adapt the position of the burnishers to curved surfaces, and the apparatus for holding the article to be bunished on both sides is so constructed, that the burnishers can burnish the margin of the article or piece of work.

VARIABLE CUT-OFF FOR STEAM ENGINES—D. A. Woodbury, of Rochester, N. Y.: I claim the combination of the vibrating yoke, D, attached to the valve stem, and the rotary cam, or wiper wheel, E, having arc-formed tappets, or wipers, h h, the whole being applied and operating substantially as set forth.

[A full description of this invention will be found on another page.]

METHOD OF SAWING SHINGLES FROM THE BOLT.—Wm. H. and Geo. Yates, of Chittenango, N. Y.: We claim the adjustable bar, H, and the carriage, E, provided with the adjustable dog, e, connected with the hand lever, F, the whole being arranged for joint operation as and for the purpose set forth.

[This invention relates to that class of machines in which a circular saw is employed to cut the shingle from the bolt which is fed to the saw by hand. The invention is designed to facilitate the manual operation of such machines and enable the operator to present the bolt obliquely to the saw, so that the shingles may be of taper form, cut butt and point alternately from either side of the bolt.]

STEAM-ENGINE—James Black, of Philadelphia, Pa., assignor to Geo. M. and Wm. S. Worl, and said Geo. M. Worl, assignor to W. S. Worl aforesaid: I claim the arrangement of the cylinder, A, hoops, F F, and disks or wheels, G G when said disks are set eccentrically to an axle which pierces the cylinder transversely, and one end of the piston rod of the cylinder is connected with and operates the hoops, substantially in the manner specified.

TRACE FASTENING—Anthony Zink, of Lancaster, O.: I claim a new article of manufacture, to wit, a trace fastening, consisting of the metal ferrule, B, provided with a circular groove, E, running in path of a vertical circle, and two slots, a a, running at right angles to the groove, and a metal cap, F, having two lugs, c d, on its inner circumference, with a space existing between them and its head, and a plate, b, extending from the circumference of the head some distance into the side of the trace, all as set forth

[This is a very simple and perfect arrangement, it allowing of the trace being attached and detached from the whiffle-tree in the shortest space of time and with the greatest convenience, and avoiding the use of a pin or a curved hook, which is unsightly in its appearance. When it is applied, the ends of the whiffle-trees can be silver or brass mounted, and finished handsomely, and no signs whatever of how the fastening is effected will be visible. Dr. O. E. Davis, of Lancaster, Ohio, is the assignee of one-half of the patent.]

BEDSTEAD FASTENING—Levi W. Buxton, (assignor to Josephus Baldwin and L. Kimball,) of Nashua, N. H.: I claim the combination of the shoulders, J J, on the locking or rail piece, c, with the notched or serrated circular edges, l l, and conical pin, h, substantially as and for the purposes set forth.

I also claim the combination of the hook, e', with the tube or friction roller, f, and stationary pin, g, substantiall as and for the purposes described.

CARPET-SWEEPER—Jacob Edson, (assignor to himself and H. F. Gardner,) of Boston, Mass.: I claim, first, Holding the rubber tire upon the driving-wheel by means of the groove, c, formed in the said wheel, as described, whereby I am enabled to use a cheaper form of soft or elastic tire than would otherwise be possible, as set forth.

Second, The use of the flap or float, h, arranged and operating as described, for preventing the escape of dust and the wear of the brooms, as set forth.

Third, Arranging two sets of brooms on their common shaft in such a manner that they shall cross each other diagonally, as described, and for the purposes set forth.

Fourth, Holding the brooms upon their shaft by sectional adjustable clamps that reach by or overlap each other, whereby, while every portion of the brooms is securely held, they can be adjusted at pleasure or new ones inserted.

Fifth, Hanging the broom shaft in such a manner by means of the hinge or pivot joint and yielding spring, that the brooms will adapt themselves to any and all inequalities of the surface to be swept, and at the same time perform their work thoroughly.

WASHING-MACHINE—Wm. C. Grimes, (assignor to himself and R. B. Fitts,) of Philadelphia, Pa.: I claim the combined arrangement of the two parallel rock shafts, e and l, having the washboards, B and C, attached thereto respectively and connected together by the flexible apron, D, as described, in combination with the double curved bottom, m and m', of the box, A, the same operating together in the manner and for the purpose set forth and described.

PORTABLE STEAM GENERATOR—Wm. C. Grimes, (assignor to himself and R. B. Fitts,) of Philadelphia, Pa.: I am aware that a steam generator has been made portable by making the boiler separable from, and adjustable upon a furnace or common stove, and that a feed valve has been operated by a float by the water of the boiler for the purpose of regulating the air draught through the flues, and also that an annular chamber has been arranged between the casing of the boiler and the fire cylinder, so as to cause the draught to pass through the said annular chamber before it enters the cylinder; therefore I do not claim, broadly, the making a portable steam generator in several distinct or separable parts, nor the use of a float valve operated by the water of the boiler, so as to regulate the draught of air through the flues; neither do I claim making an annular chamber around the fire cylinder, so as to operate as part of a flue between the said fire cylinder and the escape flues.

But I claim, first, Making the three distinctively specified parts, consisting of the furnace, A, the boiler, B, with its external cylinder, K, and float, V, attached as described, and the reservoir, H, so as to be readily separate from each other and re-adjustable together at any moment, as specified, in the manner and for the purpose set forth and described.

Second, Making the boiler, B, self-supplying (with water) by means of the float, V, and its containing cylinder, K, arranged in connection with the boiler, as described, the same operating together in combination with the reservoir, H, substantially as set forth and described,

Third, I also claim making the furnace, A, with an annular chamber between the fire cylinder, D, with the outside shell, A, and the rings, C and F, when the same are constructed, arranged and combined together, and with the other parts of the boiler, so as to cause the air which supports the combustion of the fuel in the said cylinder, D, to pass down through the said annular chamber, F, before it enters the said fire cylinder, D, as and for the purpose set forth and described,

PYROTECHNIC NIGHT SIGNALS—G. A. Lilliendahl, of New York City, assignor to Martha J. Costan, of Washington, D. C.: I claim, first, enclosing the necessary charges of pyrotechnic composition for producing signal fires within cases whose sides are composed of thin paper and tin-foil, substantially as set forth.

Second, Separating the respective layers of composition, in the above mentioned cases, by means of thin partitions or disks, substantially as set forth.

Third, Charging the aforesaid cases with such proportions of combustible and non-combustible materials as will allow the cases to be all made of the same length, and also enable a socket to be formed at the lower end of each of said cases, substantially as set forth.

Fourth, So proportioning the paper and tin-foil proportions of the aforesaid cases that a sufficient portion of the tin-foil will project above the stiff sides of each of said cases, to form, when bent inwards, a metallic covering for the top of the same, substantially as set forth.

STEAM PRESSURE GAGE—James H. Mosher, (assignor to himself and Anson T. Colt,) of New York City; I do not claim the use of a valve to close the top of the index leg of the gage or a valve in the back leg.

But I claim so applying the valves, E c, in combination with each other, that the gage may be charged while both legs are open to the atmosphere, as described, and that the air above the mercury in the index tube may be caused to have an ordinary atmospheric pressure while the mercury is at zero, and there is only the pressure of the atmosphere on the back leg.

[Some mercurial gages have their index tubes closed at the top, and this invention relates to that class. It consists in certain means by which provision is made for the charging of such gages, in a proper manner, by persons having no previous practice in charging gages, and while a gage is in its place attached to the boiler; also for renewing the air in the index leg from time to time as may be desirable; also for cleaning out the index tube when necessary. It further consists in certain means for preventing the oscillation of the column in the index leg, which also provides for cleansing out any dirt that they may collect in the connecting passage between the two legs of the gage.]

GAGING DEVICE ATTACHED TO HAND SAWS—Wm. McNiece, (assignor to Walter Cresson,) of Conshohocken, Pa.: I claim as a new and useful article of manufacture, the back saw, A, with the folding or adjustable blade, B, fitted in its rib or back bar, c, substantially as described.

[An adjustable or folding graduated blade or plate is fitted in the metal rib or back bar of the saw, so that it forms a back saw square and bevel of the one tool.]

[Concluded on page 270.]

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Observations on the Connection of the Elements by their Atomic Weights.

BY SEPTIMUS PIESSE, OF LONDON, ENGLAND.

Chemists are acquainted with fifty-five substances which are considered to be elements—that is, to consist only of one kind of matter. Their names are subjoined in the following table, to which is attached certain numbers, said to express the quantities by weight according to which the different elements combine with each other. Oxygen as 100.00.

TABLE OF GROUPS.

Names of Elements.	Atomic Weights.	Names of Elements.	Atomic Weights.
FIRST GROUP.		Osmium.....	1244.50
Fluorine.....	233.80	TENTH GROUP.	
Chlorine.....	442.65	Lithium	80.33
Bromine.....	978.31	Magnesium ..	158.35
Iodine.....	1579.50	ELEVENTH GROUP.	
SECOND GROUP.		Alumium.....	171.17
Oxygen	100.00	Manganium..	345.89
Sulphur.....	201.17	TWELFTH GROUP.	
Selenium	494.58	Cobalt	368.99
Tellurium....	801.76	Nickel.....	369.68
THIRD GROUP.		Thorium.....	744.90
Carbon.....	75.00	THIRTEENTH GROUP.	
Boron	136.25	Iron.....	321.00
Silicon	277.31	Rhodium	651.39
FOURTH GROUP.		FOURTEENTH GROUP.	
Strontium ...	547.29	Glucinum ...	331.26
Barium	856.88	Palladium ...	665.90
Lead	1294.50	FIFTEENTH GROUP.	
FIFTH GROUP.		Calcium	256.02
Titanium.....	303.66	Cerium	574.70
Tin	735.29	SIXTEENTH GROUP.	
SIXTH GROUP.		Chronium ...	351.82
Molybdenum	598.52	Cadmium	696.77
Tungsten	1183.00	SEVENTEENTH GROUP.	
SEVENTH GROUP.		Zinc	414.00
Sodium	290.90	Vanadium ...	856.89
Potassium....	489.92	EIGHTEENTH GROUP.	
Silver.....	1351.61	Zirconium....	420.20
EIGHTH GROUP.		Bimuth	886.92
Nitrogen.....	177.04	NOT GROUPED.	
Phosphorus ..	392.28	Copper	395.70
Arsenium.....	940.08	Yttrum	402.51
Antimony ...	1612.90	Uranium	1700.50
NINTH GROUP.		Mercury	1265.82
Platinum.....	1233.50	Tantalum	2307.43
Gold	2486.03	Hydrogen	12.48
Iridium	1233.50	Lantalum	

M. Mitscherlich, some time ago, laid down a law which has become generally adopted by chemists, and now forms a fundamental doctrine of physical science. This law is the "Doctrine of Isomorphism," and teaches as follows:—The same number of atoms combined in the same way produce the same crystalline form; and the form of the crystal is independent of the nature of the atoms which compose it, but is determined only by their number and relative position.

This doctrine has been observed with greater generality among substances of a complex constitution, such as salts, in consequence of their appearing more frequently in the crystalline form than otherwise.

When two salts crystalize alike, containing the same base, but with different acids, they are said to be "Isomorphous" salts. In these cases the acids themselves are supposed to be Isomorphous; but this cannot be always proved, because they do not usually crystallize, but their analysis has generally proved them to be of the same composition, when their Isomorphism has been suspected. The elements themselves, in these cases, are supposed to be Isomorphous; and the Isomorphism of the acids and salts are supposed to arise from the Isomorphism of the elements. Again, if a certain number of different bases unite with a certain acid, and form salts which crystallize alike, then these bases are said to be Isomorphous upon the same principle.

Isomorphism has been traced throughout nearly the whole of the elements, and will appear more striking on viewing the groups into which I have divided them in the table. Many of these groups or classes, are, by the Isomorphism of their compounds, so linked or blended together that they form one large family, as it were, they shade into each other like the colors of the prism, and but few distinct classes can be acknowledged.

The elements have been arranged in the table, not only with regard to their Isomorphism, but more particularly to their atomic weights; thus, in a class of two substances, that which has the lowest atomic weight precedes the higher. If three, four, or more substances are classed together (*i.e.*, Isomorphous), the same arrangement is followed. In the first class, as with the rest, the elements are not placed promiscuously, as—

Chlorine.....	442.65
Iodine	1579.50
Fluorine.....	233.80
Bromine.....	978.31

But this—

Fluorine.....	233.80
Chlorine.....	442.65
Bromine.....	978.31
Iodine	1579.50

By this arrangement a singular observation has been made—that is, that the atomic weight of the succeeding element is nearly twice that of the preceding, or *vice versa*. If the highest atomic weight be placed first, then of course the suceeding element has only one half the atomic weight of the preceding. This observation has been found to hold good in so many cases that the author is inclined to establish it as a general law.

It must be borne in mind that, as the majority of the equivalents now stand, this law only assumes to an approximation. But to proceed to show this approximations, I shall examine two of the principal groups. The fractional portions will be omitted in the following computations:—

The equivalent of Fluorine is	=	233
This multiplied by		2
will give for Chlorine	=	466
multiplied by		2
will give for Bromine	=	932
multiplied by		2
will give for Iodine	=	1864

There is not the slightest doubt but that the equivalents gained by this calculation are incorrect; it is only made to show how they approximate to the real.

This error, I am induced to believe, arises from taking an incorrect data.

(Concluded next week.)

Concrete Houses.

MESSRS. EDITORS:—I hereby send you the description of a concrete house which I have built for myself, and which is very neat, cheap and beautiful.

The main building is 25x28 feet, and two stories high—the first nine feet, the second eight feet, and there are three feet space between ceiling and roof, which is what is called a hipped roof. It projects eighteen inches, is ceiled underneath, finished with brackets, and covered with spruce plank lined over. I have an addition on the rear (also two stories), 12x14 feet. There is a piazza the full width of front. The interior is divided as follows:—The first floor has dining-room, bedroom, and kitchen; the second floor has two large rooms, with closets between, and three bedrooms. The windows are imitation French, eight lights, 12x15. The walls are ten inches thick in the first story and eight in the second. The materials used n building the walls were shell lime, cement, gravel, broken stone, and pieces of brick. My concrete is made of one part shell lime and eighteen of gravel and stone well mixed. I commenced operations by first digging my cellar the depth I wished to go for a foundation, cutting the sides square, then setting uprights of joists or wall strips all round the distance from the bank that the cellar wall was to be carried up. I then laid down large flat stones and settled them well in the earth; on these I placed my boards, set on edge and back against my uprights, which formed my boxes. In these I laid my wall (the same as any ordinary stone wall) to the top of the boxes; then mixed cement and sand into mortar thin enough to run freely, and poured it in the boxes till they were filled. The thin cement run through all the joints or crevices between the stones and cemented them together in one solid mass. This "set" in three or four hours, and the boards were raised for another course, and so on till the required hight was obtained; mine is six and a half feet.

The floor timbers were then laid in their places; each had a hole bored about three inches from the end, through which a hard wood pin was driven, and projected about three or four inches on each side. These pins serve as anchors for the walls which are built around them. I then used two sets of box boards outside and inside, secured at the bottom by small bolts made of ¼-round iron, having a nut on the end. These rods were placed about one inch from the bottom of the board and four feet apart. The edge below the rods shut over the wall below and preserved an equal thickness. The tops were secured by cleets, notched to fit the boards and the thickness of the wall. These boxes I put up all round my wall, so that they formed one continuous trough plumbing it up. They were then filled with the concrete, pressing it well to render it as compact as possible. I then covered it and allowed it to stand for twenty-four hours, by which time it had "set" sufficiently to raise the boxes for another course, which was done by taking off the cleets, unscrewing the bolts, and drawing them through the wall. These bolts answer a double purpose, viz., securing the boxes to the proper thickness, and also supporting them by resting on the walls. The door and window-frames were made the same thickness as the wall, then set in their places, and the wall built around them. My halls, parlors, &c., were plastered and "hard finished" on the main walk, without lathing, and are as solid as marble; the other inside work is the same as in frame houses. The outside was finished with common lime mortar, with the addition of a little cement, or two parts mortar and one of cement; the whole being laid out in blocks to represent stone. When dry, I coated it with clear raw linseed oil. My roof has two coats of Blake's fire-proof paint; and all the woodwork, inside and outside, has two coats of zinc paint and oil, and is varnished.

The whole only cost me about $1,000.

F. G.

Huntingdon, N. Y.

A True Sign of Progress.

The *Commercial Bulletin*, a very sensible and business-like journal published in Boston, says, in reference to Patents:—"They go hand in hand with progress, and the number granted is a fair test of the manufacturing activity not only of districts but of nations. England, France and the United States grant the largest number; while Austria, Russia, and Spain grant the least in proportion to their population. The following is an exhibit of patents granted in four of these countries during the year 1857:—United States, 2,910, or 1 in 7,935 of the population; Great Britain, 2,115, or one 1 in 13,007; Austria, 724, or 1 in 50,434; Russia, 24, or 1 in 2,902,606. A current of invention steadily sets in the direction in which it is urged by passing events, as is proved by the swelling number of applications for patents which relate to the engrossing subject of the hour. When the war with Russia broke out, the British Patent Office was inundated with belligerent projects. No less than six hundred patents have since been granted for military inventions, while the total of all that had ever been granted before was only three hundred."

Rendering Textile Fabrics Waterproof.

Take common glue and soap—one pound of each—and dissolve them in seven gallons of water, raised to the boiling point. When in a state of ebullition add to it, slowly, about one pound of pulverized alum, and maintain the boiling action for fifteen minutes. It is now taken off and cooled down to 122° Fah. and the cloth immersed in it for ten minutes, after which the latter is taken out and dried in the open air. When this is effected, it is washed in cold water, dried again, and then put in a mangle or press, to dress it. The soap for this purpose must be made of tallow. The glue and the animal acids combine with the aluminum of the alum and form an unsoluble substance, which is precipitated in the pores of the cloth.

Photographing on Wood.

The editor of the London *Photographic News*—Mr. Cook—describes a method lately discovered by him for producing photographic pictures on wood, for the purpose of engraving. He first covers the surface of the block with oxalate to which a little gum arabic in solution has been added. This produces a thin coating of the oxalate; after which the block is hid in a drawer to exclude it from light, until it is required for use. It is now taken out and exposed to the sun-light in a frame, under a picture, and when the figure comes out the block may be placed in the hands of the engraver at once, if he does not expose it to the direct rays of the sun. It is stated that diffused light will not blacken it, unless exposed for quite a number of hours to its influence. This process is only adapted for the transfering of pictures to the blocks, and is not so perfect as the American process for taking pictures direct from living objects.

Scientific Farming Memoranda.

Exhausting the Soil.—It is well known that if the same kind of crops are planted or sown for several years in succession on the same soil they will at last cease to yield. This is called "exhausting the soil," for which a partial remedy is found by the use of manures, but even with thorough manuring every season, the soil will fail to yield, if the crops are not frequently changed by what is called "rotation of cropping." To account for this, it is believed that each crop exhausts the soil of the peculiar nutritive matter which it requires, and thus it takes some years to bring back or restore such matter to the land. It is well known that some soils are so rich in certain salts as to be capable of raising a succession of crops for a number of years, but this is not the case generally. A rotation of crops and frequent manuring can alone ensure any soil from becoming exhausted. A grain crop should always be succeeded by a root or a green crop, and *vice versa*. Thus wheat, then grass, oats, potatoes, corn, wheat, turnips, barley, potatoes, rye, clover.

Manures.—Guano is a powerful fertilizer, but it is too concentrated to be used singly. It is found to produce superior effects when mixed with equal quantities of common salt, and then stirred up with about four times their quantity of moist loamy soil. The superphosphates are coming into more general use for root crops, and they are valuable for such purposes. They should be applied as early in the season as possible, as they require considerable moisture to ensure their absorption by the plants. There are many adulterations of guano sold, and as it is an expensive fertilizer, deception in its quality is a heinous crime. In burning Peruvian guano, it should loose from 55 to 60 per cent of its weight; its ash should be white, and dissolve readily without effervescence in dilute muriatic acid leaving an insoluble residue of only about 2 per cent. A bushel of pure guano weighs about 70 lbs.; if adulterated with clay, marl or sand, it will weigh more than this. This latter test will detect gross adulteration; the former a more refined adulteration.

Weeds.—Farmers should be careful not to cultivate weeds, as they steal that nutriment from the soil which should otherwise be taken up by genuine plants. To prevent weeds, great care should be exercised in securing clean seed. In clover seed there are as many as 20,000 weed seeds in every pint. As about from twelve to fourteen pints of seed are sown to the acre, over forty weed seeds are sown upon every square yard.

Seeds.—In seeds, as in live stock, defects are handed down from generation to generation, and constant care is therefore required to remove any hereditary taint. Seeds from blighted straw should never be used, because this is an indication of disease, and yet this feature is not sufficiently understood. Some farmers entertain the idea that shriveled wheat and corn will do well enough for seed; this is an unscientific and incorrect notion. The very soundest seed, and nothing else, should ever be sown.

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The Mystery of the Lakes.

"In answer to the rather absurd assumption of the editor of the SCIENTIFIC AMERICAN, that the salmon and herring found in the lakes above the Niagara must have passed into those waters originally through some subterranean stream connecting with the ocean, a writer in the Defiance (Ohio) *Democrat* says, it is much more reasonable to believe the fish entered the Upper Lakes by way of Fox river, which connects the Mississippi with Green Bay and Lake Michigan, and through a passage connecting Georgian Bay and the Ottawa. Very true. Those outlets must have escaped the recollection of the SCIENTIFIC AMERICAN. But were there no such outlets, it would scarcely be necessary to tunnel a continent to solve the mystery of the existence of certain fish in the northern lakes. As well might we contend that every one of the scores of lakes studding the Sierra Nevada range is similarly connected with the waters of the lower altitudes, because all abound in fish. The lakes on the eastern slope of the mountains, which have no outlet save into the Great Basin, are filled with a variety of the finny tribe, and a number of small lakes, without any visible outlet, are equally favored. The only solution of the mystery, then, is the supposition that the spawn of fish, or the fish themselves, have been dropped into these isolated waters by birds, or conveyed thither by Indians. If this be rejected, we are driven to the less rational presumption that fresh water possesses the elements of animal creation."

[We copy the above from the *Golden Era*, a very sprightly paper published in San Francisco. We do not suppose that the writer wishes to do us an injustice, by imputing to us the "absurd assumption" and a treacherous memory about certain "outlets;" and we therefore invite his attention to a brief summary of the leading points of our position on this exciting subject. In the first place his remarks reveal an utter ignorance of the question upon which he seems to be so wise; and in the next place, *seven years* have elapsed since we published the extract to which the above is intended as a demolisher. The article was taken from and credited to the *Welland Advertiser*, Canada West. The editor of that journal endeavored to account for the fact of salmon and herring—partly sea-fish—being found in Lake Erie, above the Falls of Niagara, by assuming that there was a subterraneous passage between the Upper Lakes and Lake Ontario. Soon afterwards, however, one of our correspondents informed us that such fish had never been found in the Upper Lakes until the Welland Canal was built. His letter was published on page 270 of Vol. VII. of the SCIENTIFIC AMERICAN, and at once settled the question. We never made any remarks about the probability or improbability of such a subterranean passage, but asserted that such fish must have some way of communicating with the sea.

The allusion of our Californian critic to the existence of fresh-water fish in the Sierra Nevada Lakes exhibits an ignorance of the nature of the question; for let it be borne in mind that it was not about fish being found in the waters above the Falls, but the *particular kind* of fish; those which are known cannot live without their annual salt-water excursions. The writer in the Defiance *Democrat* seems to be unacquainted with the nature of salmon; they are a northern cold-water fish, and are therefore not very likely to make a journey to the Lakes through the warm Gulf of Mexico, and thence up the Mississippi. The idea is absurd.

To Patentees.

Messrs. MUNN & Co. would give notice that they have had a very extensive and successful experience in the management and prosecution of rejected cases, and their services may at any time be engaged on very moderate terms. One of the members of the firm devotes his entire time to the examination and prosecution of rejected cases, arguing them before the Patent Office, the Board of Appeals, United States District Court, &c. They also attend to interferences in all parts of the country, applications for extensions, &c.

Messrs. MUNN & Co. will also furnish, through their foreign agents, copies of any English, French, Belgian or other patent. Write by mail and give full particulars.

Prevention of Fire on Board of Ships.

MESSRS. EDITORS:—The destruction of several iron steamships by fire witnessed during the last year, has again directed the attention of shipbuilders, shipowners, and of all who feel an interest in the prevention of such dreadful losses of human life and property, to the different inventions hitherto used or proposed for preventing the outbreak and extension of destructive fires on board of ships. People once believed that iron-built ships were much safer in case of fire than wooden-built ones. The mournful loss of the *Austria* in the midst of the Atlantic, the complete burning down of the iron Lloyd steamer *Hudson* in the harbor of Bremen, and the destruction of two American steamers and an English iron one, all occurring within less than seven months, have completely uprooted the favorable opinions hitherto entertained by shipbuilders, shipowners, insurance companies, and the public in general, as to the fire-proof safety of iron ships. Many practical men begin to believe that so-called iron ships, (on which generally only the frame-work and outside plates are of iron) are even more dangerous than wooden ships; the iron being a much quicker and better conductor of heat than wood. The English government has in some regard favored this opinion, and has therefore (since 1851) ordered, that all iron-built war-frigates should adopt and use the patent "Fire Annihilators." But science and experiments and real accidents (in the Crimean war) have proved the fact, that this invention is of use only in closed-up rooms, in which case fire and flames are rapidly extinguished by sulphuric and azotic vapors. In the open air, however, and in open rooms, the "Fire Annihilators" are of little or no power against the extension of the flames.

During last year, a German chemist, Mr. Bucher, secured a patent in almost all European states, for what he calls a "Fire-preventing Balloon;" and this invention has shown itself so practically useful that several German insurance companies have diminished the *premiums* of insurances on all buildings, in which Bucher's balloons are at hand. On the occasion of the large fire which destroyed a great portion of the immense beetroot-sugar factory at Waghausel (near Baden) some weeks ago, two of Bucher's balloons, when thrown into a covered wooden bridge, connecting the factory with the warehouse, immediately extinguished the fire on the burning bridge, and thus saved the latter building, which at this time contained more than a quarter of a million dollars' worth of raw and refined sugar. On that occasion it was proved, however, that these balloons, when thrown up on the open and already widely-extended fire of the factory, had no power to extinguish or to stop the ravaging flames. Notwithstanding this, I deem it both proper and extremely necessary that the government should enact a law providing that, in every inhabited room of a ship, there should be placed some such fire-preventive; for, by the experiment I have seen, I am quite sure that if used before the fire has got a too-wide extension in the room, they will be effective in almost every instance.

Another patented invention for preventing the spread of fire is known in Europe under the name of "Thourct's Fire-preventive," which I will endeavor to speak of at some other time. S.

[Will our correspondent favor us with a more minute description of the nature of Bucher's balloons? His views in reference to the "Fire Annihilator" are the same as we put forth when it was prominently before our people.—EDS.]

RICH INVENTOR.—Col. Samuel Colt, in 1847, was so poor that he mortgaged a lathe and other machinery to the Ames Manufacturing Company, to secure a debt of $750. Colt is now generally believed to be the richest man in Connecticut, and has the most complete armory for the manufacture of fire-arms in the world. He is a successful inventor.

Water-wheels by Night and Day.

A very common opinion prevails among millers and others that water-wheels do more work during night than in the daytime. In other years while attending water-wheels, we had formed a similar notion, but in theory we condemned it. We learn from the Brunswick (Me.) *Telegraph* that Professor Cleveland instituted a series of experiments several years since, to determine the correctness of such opinions. Our cotemporary states that in Maine, where saw-mills are numerous, the belief is universal that water-wheels always move faster at night. The result of Professor Cleveland's experiments was that they did not move any faster by night than by day. He selected a beautiful day in the month of August, and at 2 P. M., suspended a barometer in the mill, when the atmospheric pressure was found to be 30·19 inches—the temperature of the water 72° Fah. The wheel was allowed to revolve freely—no log being on the carriage—and its revolutions were counted by several persons, when it made 96 per minute. At midnight he revisited the mill again, the mercury in the barometer stood at 30·26 inches and the temperature of the water was as before. Under the very same conditions, the wheel made 96 revolutions per minute again—the depth of water being the same in both experiments. From these experiments there are good grounds for concluding that star or moonlight has nothing to boast of over sunlight in grinding flour or sawing our logs.

Tunneling Mountains.

In the SCIENTIFIC AMERICAN for Nov. 6, we published an interesting article in reference to the stupendous project undertaken by the Sardinian government of tunneling Mount Cenis, and thus uniting the valleys of Piedmont with Upper Italy. The appearance of this article excited considerable interest, and led to inquiries in reference to the nature of the machinery to be employed. We learn from the London *Artizan* that the immense apparatus to be used in this work is in progress of construction at Seraign, in Belgium, under the direction of M. Sommeiller, one of its inventors. It consists mainly of an hydraulic compressor, which, after having compressed the air, acts as a motive power to force into the body of the rock the blasting drills of the miners, thus forming mining cavities. The compressor serves also as a motive force to clear away the *débris* resulting from the explosion, and at the same time furnishes the means of ventilating the tunnel.

Experiments are shortly to be made at Seraign to test the late improvements in this machinery, by means of which it is expected that the great tunnel—about eight miles in length—will be bored in less than six years, which, under the old system, would have required thirty years to complete.

NEWSPAPERS.—There are published in New York city 18 daily papers—4 in the German, 1 in the French, 1 in the Italian, and 12 in the English language. There are also 37 monthly and semi-monthhly, 8 semi-weekly, and 105 weekly papers. There are ten illustrated papers published in London every week, whose aggregate circulation is 1,744,000 per week, and the weekly cost of the engravings is about $3,000; making a total annual circulation of 90,688,000, copies, and spending $150,000 a year for engravings.

CHURCHES.—New York is distinguished for the number and beauty of its church-edifices, and many of them are models of architectural elegance. There are 275 churches within the limits of this city. They may be classified as follows:—Presbyterian, 54; Episcopal, 52; Methodist, 38; Baptist, 30; Roman Catholic, 26; Dutch Reformed, 21; Jewish synagogues, 17; Miscellaneous, 17; Congregational, 6; Universalist, 4; Unitarian, 3; Friends, 3; Second Advent, 2; Swedenborgian, 1; Primitive Christian, 1.

Ultimate Value of Patents.

The London *Mechanics' Magazine* says that a firm in that city are extensively engaged in making carriages for the King of Prussia, and adds: "It can scarcely be otherwise than encouraging to inventors to find that the discoveries of some years past, which for a time were altogether abandoned for lack of appreciation, and patents which have almost consigned their sanguine originators to a lunatic asylum, are now the common place things of the day. It is with patents as with children—they can be made to earn their own, if they be but kept long enough, and there exists intrinsic merit in their composition."

These remarks, so truthful and forcible, are but a confirmation of our own experience. It is a common thing with us to receive letters, asking where such and such a patentee can be found; the object of such enquiries being to effect the purchase of the right of the unexpired patent. An instance occurred within a few days, when a party desired to purchase the right to a patent granted in 1847, and upon enquiring, it was fouud that the patentee was deceased. Inventors are ofttimes in so much of a hurry to dispose of their rights that they incur great losses.

A Gentle Hint to Postmasters.

We are perfectly aware that the SCIENTIFIC AMERICAN is a highly interesting journal, and that there are very few who do not wish to read it; but that is no reason why certain Postmasters should abstract our supplemental numbers, as they have often done, and thus deprive our subscribers of their papers. As it is our wish that the present number should be in the hands of *every* subscriber, we hope the Postmasters will do us the favor of making an especial point of promptly delivering it, and we will then be happy to furnish every Postmaster with a copy for his own private reading, if requested to do so.

BRITISH STATISTICS.—The estimates for the maintenance of the navy for the ensuing year amount in round numbers to the sum of $41,000,000.

The value of the exports of the produce of Great Britain in 1858, amounted to $580,000,000—the decrease as compared with the previous year is about $22,000,000—of which amount one-half comes of the falling-off in the iron trade. The total receipts of the railways for 1858 were $118,815,000. The expenditure of capital on these railways combined amounts to the enormous sum of $1,579,950,000, being on an average about $165,000 per mile.

BIG EATERS.—The value of food consumed in New York last year is estimated at $12,000,000, and the number of the various quadrupeds that have been eaten is:—beeves, 191,374; cows, 10,128; veals, 36,675; swine, 551,479. Of the beeves, the greatest number—a thousand per week—came from Illinois, which is the greatest beef-producing State in the Union. It furnishes twice as many as the State of New York.

COTTON.—As an evidence of the renewed activity in business, we may refer to the fact that the largest traffic ever done in cotton in one day in New York was on Thursday, the 31st of March, when sales amounted to 17,600 bales, valued at about $1,100,000.

SEWING MACHINES.—Some idea of the magnitude of this business may be obtained by the announcement in one of our exchanges that the Empire Machine Company of Norwalk, Conn., have contracted for building 5,000 such machines for one New York company.

THE GREAT EASTERN.—It is expected that the trial trip of ~~this monster vessel~~, which has been dragging along for several years towards completion, will take place in July, sailing from Weymouth, England, to the middle of the ocean and back again, to test her qualities under all possible conditions of sail and steam.

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[Concluded from page 267.]

MODE OF ATTACHING STRAPS TO BOOT LEGS—Julius A. Pickering, (assignor to Wm. Walker,) of Milford, Mass.: I am aware that it is not new to cut the leather or lining of the leg to insert the strap, and this I do not claim.

But I claim supporting or retaining the loop or upper part of the strap, in the manner and for the purposes substantially as set forth and described.

FAUCETS—Geo. W. Randall, (assignor to himself and Reuben J. Todd,) of Boston, Mass.: I claim the combination of the auxiliary or inner tap with the outer tap and the conduit case, provided with two or more conduits, the whole being constructed and made to operate together, substantially as described.

I also claim the arrangement of the air passage, p, so as to discharge, with reference to the discharging end of the inner tap, substantially as described.

SHIP-STEERING APPARATUS—D. J. Wilcoxson, of Milan, Ohio, assignor to himself and Isaac Collins, of Huron, Ohio: I claim, first, The combination of the double yoke with the traversing nuts, arranged substantially as described for the purposes set forth.

Second, Arranging the screws by which the rudder is turned on either side and below the top of the rudder post, so that, in case of accident, the tiller may be used to steer the vessel without its being interfered with by the steering mechanism.

HUB BORER—Cutting B. Wiley, of Adrian, Mich., assignor to himself and Alex. Stebbins, of Lenawee Co., Mich.: I claim the combination of the sliding cutter head, G, with the adjustable ways or slides, E, with the nut, K, and screw, C, the whole being arranged as described, for the purpose set forth.

PYROTECHNIC NIGHT SIGNALS—Martha J. Costan, of Washington City, D. C., administratrix of the estate of B. Franklin Costan, deceased: That which is desired to secure by Letters Patent, as the invention of the late B. Franklin Costan, is the signalizing of any numeral, combination of numerals, or any character, or any combination of characters, by a methodical exhibition of different pyrotechnic fires, substantially as set forth.

RE-ISSUES.

MAKING ILLUMINATING GAS—N. Aubin, of Albany, N. Y. Patented Jan. 8, 1856: I claim the described process of making gas for heating or illumination, which consists—

First, In mixing materials substantially such as are specified.

Second, In introducing them into a chamber substantially such as described, located when the process is going on within retort.

Third, In causing the products of distillation of the mixture to pass out of such interior chamber, and then be subjected to a higher degree of heat by passing in contact with the heated surface of the retort itself, substantially as specified, not intending to claim any one step of the process separately, but only the process substantially as set forth as a whole.

GAS GENERATORS—N. Aubin, of Albany, N. Y. Patented Jan. 8, 1856: I claim the combination with a gas retort of a removable interior chamber open at bottom, and having such relative shape with regard to the retort, and so located therein, substantially as is specified, and for the purposes set forth, and this I claim irrespective of the location of the opening through which said removable chamber can be introduced or withdrawn, and either with or without an apparatus for introducing steam into the retort.

TIGHT JOINTS FOR GAS RETORTS—N. Aubin, of Albany, N. Y. Patented Jan. 8, 1856: I claim a joint between a gas retort and its cover made by fusible metal contained in a groove into which enters a rim, the joint being substantially such and for the purposes set forth.

TUBULAR ELASTIC VALVE—Franklin Peale, of Philadelphia, Pa. Patented June 26, 1856: I claim, first, The flexible valves described for the purposes specified.

Second, The method described of adapting the flexible valves to pumps or other tubes of any kind, whether rigid or elastic, and inserting them therein, in the manner set forth and shown, or in any equivalent mode.

SPRING BED BOTTOM—Hiram Tucker, of Cambridgeport, Mass. Patented July 3, 1855—Improvement added July 9, 1857: I claim the described spring-bed bottom, consisting of the combination of the frame, a, slats, b, and radial springs, c, essentially as described.

ADDITIONAL IMPROVEMENT.

SEEDING MACHINES—Charles Cox James, of Dayton, Ohio. Patented Dec. 15, 1857: I claim the arrangement of the stationary roof, like screen, N, lateral sloping projections, e′, septem, O, slides, G, and G″, slotted bars, f, and shoes, I I, with slide, E, and trough, F; the above part being constructed substantially as described and used in combination with the features covered by my patent of Dec. 15, 1857.

DESIGNS.

FLOOR CLOTH—James Patterson, of Elizabeth, N. J.

PLATES FOR COOKING STOVES—S. H. Ransom, of Albany, N. Y.

PLATES FOR STOVES—S. H. Ransom, of Albany, N. Y.

Canadian Patent Laws.

England has always displayed an admirable cosmopolite policy in permitting the citizens of all nations to secure patents for new improvements on equal terms with her own people—no distinction being made on account of birth, or place of nativity. Any nation which lays claims to justice and wisdom in the administration of its affairs, stands in a position to have those claims disputed unless it exhibits a spirit of liberality in fostering improvements in the arts and sciences. The Canadas have occupied such a position for several years past, for while provision is made in their laws, for issuing patents to British subjects, they grant none to the citizens of any other government. Unlike the mother country, they exhibit a narrow, unjust and unwise policy towards the inventors of every country but their own. Quite a large number of intelligent men in Canada have always felt this to be an evil, but hitherto they have not been able to effect such a reform in their laws as they desired. Two years ago, a bill was introduced into the Provincial Parliament to effect this object, but, we regret to state, it was defeated by a considerable majority. As a counterpoise to this, it has afforded us much pleasure to be informed that more liberal views have recently been exerting a beneficial influence among our northern neighbors on this question, and that a committee of competent members has been appointed to reconsider the question fully, by the present Parliament, which is now in session at Toronto.

We hold this to be a good omen, and we hope it will result in permitting the inventors of all nations to secure patents upon easy terms in Canada. We can assure our Canadian friends that we have not the least doubt, but such an amendment to their patent laws will be the means of greatly advancing their solid interests. We are positive that they have lost much by refusing protection by patents to our inventors, for when they visit the United States they are regarded with suspicion if they approach our machine shops and manufactories—the inference being, that the object of their visit is to purloin new inventions, and as a consequence they are denied privileges which are fully alllowed to others. But even if Canadians were permitted free access to examine all our new inventions, they would not secure much benefit for Canada, without a full protective patent law. The cause of this is a question of easy solution. A new invention, however good it may be, has generally some prejudices to overcome, and there is at least always more expense involved in its introduction than to commence a similar manufacture in opposition after it has acquired a reputation. For this very reason, therefore, persons who have capital, and who would be ready and willing to invest in establishing new manufactures, will not do so without such a protection as that which is secured by patents. From our own knowledge of facts, we are free to assert that a vastly increased number of new and useful inventions would have been introduced into Canada, during the past three years, had the laws permitted our citizens to take out patents there. As a question of justice to our inventors and those of other nations, as well as an act of wise policy for the people of Canada themselves, we urge them to improve their patent laws iu the particular feature which we have distinctly pointed out.

Saw-Mills without Balance Wheels.

MESSRS EDITORS:—I have not had much experience with the up-and-down saws, but I think I understand something of the philosophy of fly-wheels, &c. Theories may err but philosophy never. When machinery operates well, it must be on philosophic principles. One of your correspondents "goes in" for a uniform fly-wheel, and others for a heavy side or weight upon the pitman to balance the gravity of the saw. I will differ from them all, and place the weight and pitman together and argue the point thus. We know that a uniform fly-wheel without any attachment will run without any and-up-down strain, because the centrifugal force is equal; but if a weight be added to one side, it will pull off in every direction as it revolves and causes an up-and-down springing of the timbers. Now if the pitman be attached to the opposite side, the strain is nearly doubled; the bearing operating as a fulcrum and receiving the strain of the momentum of the heavy side; add the resistance of the cutting of the saw, and we have the strain greatly increased. Now change the weight to the pitman side and it will pull the saw through with but little strain to to the shaft bearing, and the momentum of the weight will be neutralized in carrying the saw up again with but little strain to the bearing. I once ran a saw having a simple crank without a fly-wheel, and found that the shaft would pull up as well as down even when the saw was not cutting; the momentum of the saw upwards has to be checked for the return stroke, if the weight and pitman are together, the weight will receive or neutralize the checking strain.

M. B. RANKIN.

Guadaloupe River, Texas,
March 20, 1858.

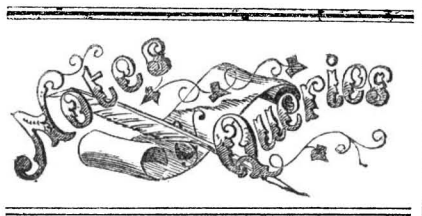
ERRATA.—In our description of Cummings' Ash-Sifter on page 256 of the present volume of the SCIENTIFIC AMERICAN, the date of the patent should be 1859 instead of 1858 as there stated.

Improvement in Power Looms.

W. H. Cheetham, Jr., of New York City, has invented and patented an improvement in power-looms for weaving carpets or other fabrics which require the use of several shuttles as may be required for any pattern and the bringing of the several shuttles into operation in proper succession by automatic mechanism without using more than two or three shuttle-boxes (according to the number of plies in the fabric to be produced) on each side of the loom, and thereby to get rid of the difficulties which attend the lifting of the enormous weight of a large number of shuttle-boxes and shuttles in making the necessary changes of the shuttle, and of the inconvenience which arises from the necessity of keeping so great a weight swinging back and forth in the operation of the loom, and thus to enable the loom to be driven at a greater speed than is practicable where a large number of rising and falling shuttle-boxes is used. The claim will be found on another page.

Variable Cut-off Gear.

D. A. Woodberry, of Rochester, N. Y., has invented and patented an improved variable cut-off gear, which can easily be attached to any engine already in use. The invention consists in a certain novel and simple combination of a vibrating yoke attached to the stern of the cut-off valve, and a rotary cam or wiper wheel deriving a positive rotary motion from the engine, which provides for the opening of the cut-off valve always at the proper time and the closing of the same to cut-off the steam at any point in the stroke of the engine that may be desired. The claim will be found on another page.



*** PERSONS who write to us, expecting replies through this column, and those who may desire to make contributions to it of brief interesting facts, must always observe the strict rule, viz., to furnish their names, otherwise we cannot place confidence in their communications.

WE are unable to supply several numbers of this volume; therefore, when our subscribers order missing numbers and do not receive them promptly, they may reasonably conclude that we cannot supply them.

J. B. Van D., of N. Y.—A hydraulic ram is totally inapplicable on shipboard; a fall, however small, is necessary for its operation.

W. H. S., of Conn.—A patent could not be procured for the application of an india-rubber ring to a peg awl, so as to throw it out after the blow. It is not new, as the same thing has long been known.

C. A. B., of Pa.—We make no charge for the publication of articles in our columns, therefore your offer to pay for the one you have sent us about Martin's boiler can have no effect to induce us to change our mind in reference to it. We decline its publication, as it would seem to be, on our part, an unprovoked attack upon his patent. We have never pursued this course towards any patentee since we began the publication of this journal.

G. B. S., of C. E.—The Bain Telegraph patent is owned or controlled by Marshal Leferts, of this city. We furnish copies of claims of patents for $1 each, but not the full specifications. We should be obliged to procure such copies from the Patent Office: and to render the specification intelligible, the drawings ought also to accompany them. If you desire it we can ascertain the exact cost.

W. Z. C., of Ill.—The ore you sent us is an argillaceous iron ore, and would no doubt make a good common paint when properly ground and mixed.

C. C. F., of N. H.—The art of stuffing birds requires long practice to master. To preserve your eagle for stuffing, all the intestines should be taken out and the bird wiped as dry as possible, and the interior stuffed with tow and arseniated soap. It is the arsenic which preserves the feathers and flesh from decay; great care is therefore required on the part of those who prosecute this art. Creosote is a tolerably good substitute, and we advise you to use it in the meantime.

S. M., of P.—Barr stones are found in Georgia, and from their hard crystalline appearance, and other causes, there is little doubt that they have once been in a melted condition.

E. B. G., of Vt.—We cannot inform you where rules and instructions for tin-plate workers can be obtained.

W. G. W., of Ohio.—Dead oil is one of the products of coal tar, and is not, so far as we are aware, manufactured in this country. It is the same product of mineral tar that creosote is of vegetable tar. "Knapp's Technology" will tell you all about it.

H. J. T., of R. I.—The rice buttons are made from rice in a state of pulp, which is dried in a proper mold under pressure, and thus becomes hard and durable.

M. S. H., of Ill.—You can procure a Sharpe rifle by addressing the Sharpe Rifle Manufacturing Company at Hartford, Conn.

G. E. G., of N. Y.—Button-hole machines have been attempted, but as yet without success, so far as we know. You had better send us a sketch and description of yours for examination.

E. W., of Conn.—You should apply to the Legislature of Connecticut for a premium to restore the peach-tree before any movement is made to solicit prizes from other States.

H. M., of Pa.—Lieut. Maury made no reply to the communication to which you refer regarding the Gulf Stream. We suppose his writings on this subject cover the ground.

S. W. W., of La.—If you had forwarded us an account of the meteor at the time when the incident occurred, it would have been interesting as a matter of news, but it is too old for publication now.

A. P., of Ohio.—A coiled wire made into a cable, as you have described, will retard instead of facilitating the flow of the electric current.

A. D. B., of Pa.—Cantelo's egg-hatcher is the best, but we cannot tell you its price or capabilities. Such apparata are not used on this continent, and we, ourselves, are old fogyish enough to prefer the egg hatching machine called a hen.

R. C. Jr., of Montreal, C. E.—Common gas jets have been burned on platinum points, and they have given an increased light, and so would calcium points if used in the same manner. It would be far too troublesome, however, to use the latter in street lamps, for all the benefits that would be obtained from them.

A. C. F., of Pa.—A patent could not be obtained for making a fluid lamp of gutta-percha. We could not advise its use for this purpose, especially if the fluid contained turpentine.

W. & T., of N. Y.—We have a good opinion of the Volcanic Repeating rifle, but we cannot answer your enquiry us to its accuracy in long ranges compared with the common rifle.

T. A. B., of N. Y.—A little oxalic acid rubbed upon the ink-spots, and then moistened, will take it out of your book.

W. H. B., of Ala.—If the escape pipe of a steam-engine run out horizontally at the stern of a boat, the steam, in escaping, would tend to propel the vessel forward by its recreative force; but the amount of this would just be in proportion to the back pressure, and would require the pipes to be much contracted. No benefit would therefore result from such an arrangement.

T. S., of Conn.—"How long has the connection of two boilers (working together) by water pipes, as well as steam pipes, been an exploded idea?" Such never has been, and propably never will be, an exploded idea. Some gang boilers are thus connected, and some are not, but if all the boilers are of the same capacity and construction, and set on the same level, we believe this is the best mode of connecting them.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, April 9, 1859:—

D. R., of Pa., $25; W. B., of Wis., $30; J. McD., of Mich., $30; R. H., of Tenn., $25; H. B., of R. I., $25; W. S. & G. B. of Ill., $30; G. G. B, of Wis., $25; G. F. D., of Pa., $25; C. R. M. W., of N. Y., $30; W. L. G., of N. Y., $30; G. S. M., of Pa, $30; S. & J. T., of Pa., $25; G. R. H., of Mo., $20; J. D. B., of Vt., $27; G. W. D., of N. Y., $60; W. S. & Co., of O., $25; T. M., of N. Y., $25; R. F. W., of N. Y., $25; W. H. A., of Iowa, $25; E. B., of Pa., $25; T. B. T., of S. C., $10: J. H., of Pa., $25; H. L., of Mass., $30; E. S., of Vt., $30; C. M. B., of Mo., $30; J. L. N., of Ill., $25: C. H. B., of Pa., $25; T. S., of Ill., $25; S. H., of N. Y., $350; N. B. G., of N. Y., $25; T. V., of Texas, $35; S. F. A., of Ky., $25; L. H. T., of R. I., $25; L. P., of N. Y., $25; G. R., N. Y., $25 H. W. A., N. Y. $150; P. & M., of O., $25; B. D., of Ct., $30; L. S. B., Jr., of N. Y., $10; A. M., of La., $70; C. A. & S. W. T., of R. I., $30; R. H. & A. D. M., of N. Y., $100; S. B., of N. Y., $25; T. H. T., Jr., of Mo., $30; R. B. B., of Vt., $25; J. S., of Mich., $25; K. & P., of Ct., $30; N. B., of Iowa, $25; L. W., of Iowa, $15; J. S. B. N., of Mo., $30; R. J. H., of O., $25; R. A. F., of N. Y., $30; P. M. of N. Y. $25; J. B. A. of N. H., $200; J. T., of Ill., $30; C. C., of Wis $25; L & P., of N. Y., $25.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 9, 1859:—

W. H. A, of Iowa; L. & P. of N. Y.; H. L. of Mass.; G. M. of Ct.; K. & P. of Ct.; C. H. B. of Pa.; T. S. of Ill.; P. M. of N. Y.; D. R. of Pa.: T. M. of N. Y.; S. B. of N. Y.; G. K. of N. Y.; N. B G. of N. Y.; H. G. of O.; J. H. of Pa.; L. H. T. of R I.; E. B. of Pa.; R. H. of, Tenn; J. L. N. of Pa.; N. B. of Iowa; T. B. B. of N. Y.; G. R. of N. Y.; S. F. A. of Ky.; R. I. H. of O; P. & M. of O.; C. C. of Mass.; H. G. of La.; S. & J. T. of Pa.; T. W. G. of N. J.; R. B. B. of Vt.; R. F. W. of N. Y.; W. A. of N. Y.; (3 cases).

Literary Notices.

CARPENTERS' AND JOINERS' ASSISTANT.—Published by Blackie & Son, No. 117 Fulton street, New York.—This work is published in numbers, sixteen of which have been issued. It is illustrated with numerous engravings on steel and wood, and is unquestionably the most superb and thorough treatise on the subject ever published. Wooden steeples, ornamental windows, bridges, houses, roofs, arches, and all the styles of superior architecture and joiner work are amply illustrated and described in a scientific manner. As our country is celebrated for wooden structures, it is a most valuable acquisition to our carpenters, joiners, and architects.

RECENT PRACTICE IN THE LOCOMOTIVE ENGINES.—Published by Blackie & Son.—This is a supplement to "Railway Machinery," a very extensive treatise formerly issued by the same publishers. This supplement is edited jointly by D. K. Clark, C. E., of London, and Zerah Colburn, M. E., of New York, both able and practical engineers. The latest improvements in English and American locomotives are described and illustrated with accuracy and clearness, and much useful information, necessary to engineers, is here presented for the first time. Four numbers have been issued, and four more will complete the volume.

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IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the SCIENTIFIC AMERICAN, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of thirteen years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office. 37 Park Row. New York. We established, over a year ago, a Branch Office in the City of Washington, on the corner of F and Seventh streets, opposite the United States Patent Office. This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it. Inventors and others who may visit Washington, having business at the Patent Office, are cordially invited to call at our office.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

The annexed letters from the last two Commissioners of Patents we commend to the perusal of all persons interested in obtaining patents:—

Messrs. Munn & Co.—I take pleasure in stating that while I held the office of Commissioner of Patents, MORE THAN ONE-FOURTH OF ALL THE BUSINESS OF THE OFFICE came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.

Yours, very truly, CHAS. MASON.

Immediately after the appointment of Mr. Holt to the office of Postmaster-General of the United States, he addressed to us the subjoined very gratifying testimonial:—

Messrs. Munn & Co.—It affords me much pleasure to bear testimony to the able and efficient manner in which you discharged your duties as Solicitors of Patents while I had the honor of holding the office of Commissioner. Your business was very large, and you sustained (and, I doubt not, justly deserved) the reputation of energy, marked ability, and uncompromising fidelity in performing your professional engagements.

Very respectfully, your obedient servant.

J. HOLT.

Communications and remittances should be addressed to MUNN & COMPANY, No. 37 Park-row, New York.

STEPHENS' PATENT COMBINATION Rule of Boxwood and Hard Rubber, combining a Rule, Square, Level, Bevel, Indicator, &c. For illustration, see SCIENTIFIC AMERICAN, May 29, 1858.

"It combines more usefulness in a small, and withall in a very simple form, than anything of the sort ever before invented."—[New York Tribune.

Sold by all the principal hardware dealers in the United States. L. C. STEPHENS & CO.,
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WARREN'S TURBINE WATER WHEEL—Improved and patented by A. Warren and E. Damon, Jr. The vast number of these wheels now in operation, and the invarible success attendidg them, is the best evideuce of their advantages over ordinary wheels in the economy of water power. The American Water Wheel Co. will send to applicants (enclosing two stamps) their pamphlet, containing engravings of turbines and a treatise on hydraulics. Address, A. WARREN, Agent, No. 31 Exchange st., Boston Mass.
32 9t*

REYNOLDS' CONCENTRAL PRESSURE Water-Wheel—Patented March 24, 1857. Adopted by the Hydraulic Caual Company at Oswego as their standard for high per centage of effect, combined with the utmost economy in the use of water. It is simple in construction, therefore cheap and durable. Send for a pamphlet, containing particulars, testimonials, &c., which will be sent free to any address by
32 5t* TALLCOT & UNDERHILL, Oswego, N. Y.

GRAPHITE.—THE HERON MINING COMPANY, owners of the best and the largest known Graphite Mines, (those in Wake County, North Carolina,) have their Graphite, for Founders and for Lustre, prepared in the best manner, and also made into paint by their agents in New York, Messrs. D. F. TIEMANN & CO., No. 45 Fulton street. Afterlong experience, the Heron Mining Company, with the best Graphite, and prepared as none others know how, are now supplying the market through their agents above named, who are in possession of the most ample testimonials of the superiority of this paint over all others. 32 4tc.

LESTER'S SEWING MACHINES—TWO Thread Lock Stitch Shuttle Machines for Family Use—Not Excelled—Warranted to do good work on thin or thick goods or leather. Price from $50 to $150. Manufactured and sold under legal rights from Howe, Grover & Baker, Wheeler & Wilson, and I. M. Singer & Co. Office, 483 Broadway, New York—manufactory, 57 Pearl street, Brooklyn, N. Y.
1* J. H. LESTER, 483 Broadway, New York.

BEES.—A TREATISE ON BEES, JUST PUBlished, 175 pages, sent (postage free) for 25 letter-stamps. Address F. S. C., box 2,248 Boston Post Office.
1*

THE POLAR REFRIGERATOR, WITH Filter and Water Cooler combined, involving important principles, never before attained, which enable meats, fish, milk, vegetables, fruits, to be kept longer, dryer and colder, with less ice, than can be done with any other refrigerator in use. BARTLETT & LESLEY, Manufacturers, No. 380 and 426 Broadway, New York. 32 2*

TO RENT—IN ONE OF THE BEST LOCAtions in the State, premises cousisting of a Foundry, Machine, Blacksmith and Boiler Shops, with Tools, Patterns, Lathes, and Planers, all new and in good condition, particularly well adapted to all kinds of boat and engine work, and a general jobbing business; also, several fine rooms, with power suitable for any manufacturing business either in wood or iron with an amount of good docking. The premises are in the city of Buffalo, and will be rented in whole or in part to suit customers. Address E. & B. HOLMES, Buffalo, N. Y. 32 3*

SECOND-HAND MACHINERY AT VERY low prices for cash.—Steam-Engines, Slide Lathes, Planing Machines, Drills, Slotting Machines, &c.; also a variety of Mortising, Tenoning, and Sash Machines, &c., all warranted in good running order. Address CHARLES G. WILLCOX, 135 North Third st., Philadelphia, Pa. 32 6*

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WROUGHT IRON PIPE FROM ⅛ OF AN inch to six inches bore; Galvanized Iron Pipe (a substitute for lead), Steam Whistles, Stop Valves and Cocks, and a great variety of fittings and fixtures for steam, gas, and water, sold at wholesale and retail. Store and Manufactory 76 John, and 29, 31 and 33 Platt st., New York. JAMES O. MORSE & CO.
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NAPIER'S MANUAL OF ELECTRO-METALLURGY: Including the Application of the Art to Manufacturing Processes. 12mo, illustrated. $1 25. Sent by mail free of postage.

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FOR SALE—A STEAM-ENGINE, 60-HORSE power, with return flue boiler of 100-horse power. Were built to order, and are nearly new. Will be sold cheap. Inquire of NEWTON ADAMS, Lansingburg, N. Y. 32 5*

WANTED—A PAIR OF PLAIN SECOND-HAND cast-steel rolls, from four to six inches diameter, and the same length. Apply or address C. A. POSTLEY, 223 Bay street, Jersey City, N. J. 1*

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WHITMAN'S TURBINE WIND WHEEL.—Territorial or shop rights for sale. For particulars, inquire of the inventor, E. WHITMAN, at South Abington, Mass. 32 12*

THE MINIMUM FOUNTAIN PUMP—PATented Nov. 1, 1858.—This pump raises, conveys and ejects water, &c., to any given hight or distance. It requires but half the power that other pumps, &c., do; in short, its many advantages give it the mastery of the age. Rights for sale. A. L. KEEPORTS and GEO. PALMER, Littlestown, Pa. 32 3*

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WANTED—A WHEELWRIGHT, AN ENERgetic mechanic, thoroughly and practically acquainted with the manufacture of hubs, spokes, fellocs and wheels by machinery, to go South, to organize and superintend a manufactory of this kind. Address, with references, LANE & BODLEY, Cincinnati, O.
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PATENT COMPOSITION BELTS—PATENT PACKING—The Company have on hand and are ready to supply all orders for their superior Composition Machine Belting. They are proof against cold, heat, oil, water, gases, or friction, and are superior to leather in durability, and much cheaper in cost. The composition gives to these belts uniform durability and great strength, causing them to hug the pulley so perfectly that they do more work than any other belts of the same inches. The severest tests and constant use in all sorts of places during the last 14 months has proved their superiority, and enables the Company to fully guarantee every belt purchased from them. Manufacturers and mechanics are invited to call, examine, and test these belts. The Patent Packing for planed joints is in every way superior to any other article ever used for that purpose. A liberal discount allowed to the trade. "New York and Northampton Belting and Hose Co.," E. A. STERN, Treasurer, 217 Fulton st., New York. 30 13

DRAINING TILE MACHINES OF THE most approved construction, manufactured by R. R. GIFFORD, Albany N. Y. 23 12*

THE SCIENTIFIC AMERICAN SIGNS, for Munn & Co., were painted by Ackerman & Miller. Refer to the Commercial Agency, McKillop & Wood, Park Buildings. All communications for signs, banners, or other ornamental work, attended to with dispatch. ACKERMAN & MILLER, 101 Nassau st., next to the New York Herald Office. 27 3m

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FELT FOR STEAM BOILERS, PIPES, ship sheathing, marble-polishers, jewellers, and calico printers' use, manufactured by JOHN H. BACON, Winchester, Mass. 31 26*

PERPETUAL MOTION!—THE UNDERsigned has recently invented and patented a wheel, which is both a wind-wheel and a water-wheel. This wheel is remarkably cheap, simple, and strong; and when used as a water-wheel, requires no dam whatever. Any one who wishes to judge of this wheel for himself can easily make a model of it. Take a a number of thin strips of light wood, say ten inches long, and three quarters of an inch wide, bore a hole through the center of each of them, and place them on a common axis; then spread them out like a fan, so that they may slightly overlap each other. Toy-makers will find that a small model of this wheel forms a cheap and beautiful toy for children. For particulars, address W. H. BENSON, Montgomery, Ala. 30 4*

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FOR SALE.—A STEAM FLOURING MILL, with two pair of burrs, 194 acres of timber land, all in good order, known by the name of Port Louisa Mills, Iowa. The proprietor wishes to retire from business, and offers it on reasonable terms. Inquire of J. N. SCHOFIELD, Port Louisa, Louisa county, Iowa.
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D. JACOBUS, NO. 138 WOOSTER STREET, New York, Agent for Fay & Co., Worcester, Mass.—Wood-working Machines for Planing, Tenoning, and Molding. Also, Ellis' Blind Slat Tenoner, and Crosby's Mitering Machine, and various other machinery, can be seen in operation at the above place.
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A SUBSTITUTE FOR LEAD PIPE.—A New and Valuable Article, viz., a Semi-Elastic Pipe or Hose which can be used with pumps of any kind, for suction, forcing, or conducting water in any and every place where pipe is required. Its properties are:—It imparts no deleterious effects to the water, nor in any way effects it unpleasantly after a few days' use; it is sufficiently elastic to be bent into curves, and it is unaffected by heat or cold: it will not burst if water is frozen into it; it is not injured by exposure to the sun or atmosphere; it is composed of ingredients indestructible, except by fire. Samples of it have been tested by use for three years, without the least apparent decay, and it can be made to bear pressure as high as 400 lbs. to the square inch. Price not far from that of lead pipe. Circulars with prices and particulars furnished by the manufacturers. BOSTON BELTING COMPANY, corner of Summer and Chauncey streets, Boston, Mass. 31 13*

CLAY RETORTS—THOS. HOADLEY, PATentee of the Patent Pyro-clay Gas Retorts—manufactory Nos. 32 and 34 Front st., Cleveland, O. 24 12*

HOLMES, BOOTH & HAYDEN, 81 CHAMbers street, New York, have now in store from their manufactory a complete assortment of Sheet Brass, Copper and German Silver; Brass, Copper and German Silver Wire; Silver Plated Metal, Copper and Brass Rivets, &c., to which they invite the attention of the trade and manufacturers generally, 29 8*

PATENT HORSE-SHOE MACHINE.—PERsons should be cautious in purchasing patents for Horse-shoe Machines that may be offered for sale. The undersigned has secured the right of the Griffith Patent, and many of the machines now offering are believed to be an infringement on this patent, sold by Robert Griffith to Strickland Kneass, and others, of the city of Philadelphia, Pa. T. SCOTT STEWART.
31 2*

EGGLESTON'S DOUBLE CIRCULAR SAW Mill cuts two plank every time the log passes through.—We will furnish these mills at a small cost more than the single saw mills and use the same number of hands, and guarantee them to be easier kept in order; also, to cut double the quantity, and a far better article of lumber than can be made by any single saw. Address HARMAN & EGGLESTON, Quitman, Miss. 31 2*

SOLUBLE GLASS.—TO BUILDERS, ROOFers, Masons and Railroad Contractors.—The Soluble Glass—Silicate of Soda or Potash—with the application of Chloride of Calcium, will make everything fire and waterproof, hardens walls, and produces the hardest roofing cement. For sale by DR. L. FEUCHTWANGER, 143 Maiden lane.

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BUTCHER'S IMPERIAL CAST STEEL FILES—The subscribers keep constantly on hand a very large assortment of the above celebrated files, which are acknowledged to be unequaled in quality, and to which the attention of railroad companies, engineers, and machinists is invited.

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CALIFORNIA AGENCY FOR PATENTS—WETHERED & TIFFANY, San Francisco, will attend to the sale of patent rights for the Pacific coast. References:—Messrs. Tiffany & Co., New York; Wethered, Brothers, Baltimore; George W. Ponds & Co., Boston. 23 13*

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Science and Art.

Great Volcanic Eruption.

From our interesting exchange, the *Pacific Commercial Advertiser*, Honolulu, we learn that another great eruption of the volcano, "Mauna Loei," in the Hawaiian Islands, took place on the 23d of January last, and it is stated to be the grandest display of natural fireworks ever witnessed on that wonderful island. A new crater had formed in the mountain at an elevation of 6,500 feet, and the scene is represented to have been awfully grand, especially during the night. It is believed by many that such eruptions are caused by water finding access to subterranean deposits of pyrites, thereby causing their chemical decomposition, and finally producing an explosion. No steam, however, has been noticed arising from this volcano, so this theory does not seem to be applicable to this case. The new crater forms a hole 800 feet wide in the mountains; the molten lava is first thrown upwards in columns a thousand feet high, then it falls down in a huge fountain of sparkling fire, and pours down the mountain side in a broad seething river, devouring all vegetation in its course. In several places it forms lofty cascades, which have a terrible appearance; down from a hight of several hundred feet, the fiery mass takes plunge after plunge into the boiling cauldron below, then dashes onward in surges resembling waves of molten brass. This eruption is the greatest which has taken place in half a century, and much excitement prevails among the people, as the lava seems to be moving towards the town of Hilo, as it did in 1855, threatening its destruction.

Improved Shingle Machine.

The term "shingle," as applied to thin pieces of wood for covering or roofing houses, is peculiarly American, and although Webster does not seem to notice the fact, it is never used in such a sense in Britain. This being the case, it naturally follows that the machines which are constructed for their manufacture are purely national, and there are few classes of machinery on which more of our peculiar nervous ingenuity has been expended than on these.

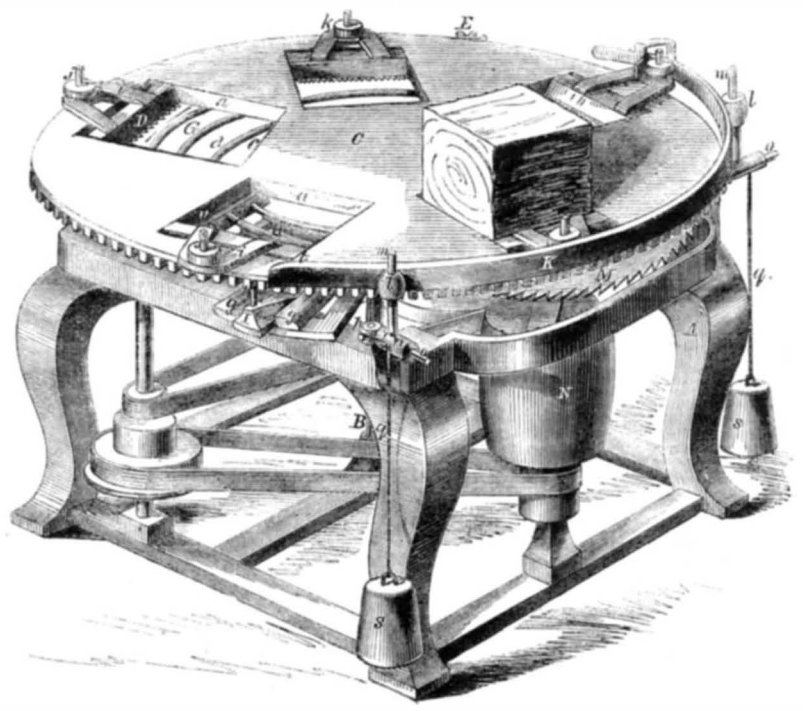
Our illustration is a perspective view of the one invented by Kassen Freeman, of Fond du Lac, Wis., for which he has applied for a patent. He patented a similar one in principle, June 29, 1858, and this is an improvement upon the former invention. A represents a frame having a vertical arbor, B, in its center, which has the circular plate, C, upon its upper end. This plate has a number of square openings, *a*, made within it, in each of which is a sliding dog, D, carrying, by arms, *i*, a friction roller, *k*, upon a small shaft, *j*. The inner edges, *c*, of *a*, form stationary dogs or jaws.

The plate, C, is toothed on its periphery, and a pinion, E, gears into these teeth, so that it can, on motion being given to its shaft, rotate C. On the upper part of frame A, and below C, a curved stationary grating or bed, G, is placed; the bed being formed of bars, *d*, fitted into cross-bars.

At the end of G a tilting-bed, H, is placed, which can be made to assume two positions. Underneath H a sliding double wedge, I, is placed and fitted between guides, *g g*. To the upper end of I an upright pin, *h*, is attached, and to the under side of C a wedge-shaped block is fitted.

K is a curved bar which forms part of a circle concentric with C, and having two eyes or sockets, *l l*, attached to its outer side, which fit loosely on vertical rods, *m m*, attached to sockets, *n*; these latter slide freely on rods, *o*. The rods *o* are attached to the frame by pivots *p*. To the inner edge of each rod, *o*, a cord, *q*, is attached, which passes over pins, *r*, in the sockets, *n*, and from the lower end of *q* depends a weight, *s*. The tendency of *g* is to keep K towards the plate C, and against the rollers *k* on the rods *j* of the dog D. One end of K is slightly curved out as shown at *t*, and the opposite end has a curved bar attached to it inside.

M is the saw placed at the end of the tilting-bed H, upon an arbor provided with a belt wheel, N. The saw is surrounded with a trough or box, made of wood or sheet metal, to



FREEMAN'S IMPROVED SHINGLE MACHINE.

which, as it revolves, carries the bolts round on the stationary bed, G, and tilting-bed, H, and saw, M; the latter cutting the shingles from the block, which are inclined first in one direction and then in the other by the tilting of H, through the medium of the wedge on the under side of C.

In order to allow the bolts to be tilted they must be free from the dogs D, and they must, of course, be securely clamped while being acted upon by the saw, M. The bolts are clamped just after being tilted in consequence of the rollers, *k*, of the dogs coming in contact with the curved bar, K, which is held against them by the weight, *s*, and the dog D is forced against the bolt and holds it during the sawing. After the bolt leaves the saw the roller *k* passes behind the curved bar attached to the other end of K, and the dog is released from the bolt. By this arrangement the bolt is dogged and undogged in a very simple manner. For any further particulars concerning this excellent machine, address C. T. Pierson, No. 24 Broadway, New York.

Norvell's Choking Strap.

An unruly horse, mule, or ass is a very unpleasant animal, which not only tries the patience of its master, but often places the anatomy of that same master in great jeopardy of being suddenly disturbed. It is therefore very desirable that the driver or rider of an animal should have some means of letting it become fully aware of the fact that it has a master whom, force per force, it must obey. R. B. Norvell, of Huntsville, Ala., has invented the choking strap represented in our engraving which is the very thing for the purpose.

A is the rein, and B C D, the straps that form the bridle and keep the bit in the animal's mouth. On the cheek strap, B, a small pulley, *c*, is placed, one each side, and over this passes a cord, E, carrying a flat loop, F, that passes under the horse's throat, the other ends of the cord passing through the bit ring and like a common rein over the neck. The slightest pull on this chokes the horse, and in a convincing manner shows him the nature of his position; should he be restive, inclined to run away, or perform any of those monomaniacal acts so common to the equine race, a slight choking immediately remedies it. Some horses are given to breaking their halters, ropes or reins, when hitched up, of which habit they are easily cured by attaching this choking strap (for it is equally applicable to halters as to bridles), and when the horse makes the discovery that the harder he pulls the more he chokes, the pulling will soon cease and the horse refrain from his bad habit. To the professional or amateur "breaker" this must be invaluable, as it gives him such a perfect control over the wildest specimen that may be brought to him, and we have no doubt but that it will be properly appreciated by such persons.

The inventor has applied for a patent, and will be happy to furnish any further particulars upon being addressed as above.

ELDERBERY WINE.—On a cold winter's night, when one has a cold, and feels wheezy generally, we should like to know any physic that is equal to elderberry wine. As an article to have in the house, not to be used constantly as a beverage, but occasionally as a gentle stimulant—a sort of medicine when one does not actually want physic, there are not many things equal to the juice of the elderberry. Both these statements are to be qualified with the proviso that it must be good and pure. From an item that appeared in our columns lately, entitled "A Case of Illness," in which we mentioned the case of a person who was made ill by drinking this same liquid, it would appear that there is some of this wine sold which is neither pure nor good; it is therefore with much pleasure that we can recommend that manufactured by Alfred Speer, Passaic, N. J.; some samples that he recently sent us are the best we ever tasted.

A HEAVY DAY AT THE POST OFFICE.—Wednesday, the 30th ult., will be remembered by the clerks in the New York Post Office. The foreign letters despatched were 35,187; the foreign letters received per *Niagara*, *Kangaroo*, and *Persia* were 72,499; add to these 90,000 for domestic—sent and received—and we have a total of nearly 200,000 letters, making the largest and heaviest day's work ever known in the New York Post Office.

BANKING ITEMS.—There are 54 banks in New York city, having a combined capital of $68,048,385. On the 2d inst. the loans amounted to $128,702,192; deposits, $110,614,425; specie, $25,732,161; circulation, $8,221,000. These banks make their exchanges with each other through a Clearing House established for this purpose, and on the 4th inst. $27,000,000 was exchanged, which is the largest amount since the flush times of 1857.

INSURANCE.—There are in the cities of New York and Brooklyn eighty-six insurancies, whose combined capital is $18,000,000. The amount paid for losses in 1858 was $2,573,978. Seventy-nine companies paid dividends in 1858, the highest of which was thirty-two per cent on the capital and the lowest five per cent. These companies are generally managed by careful and honorable men, who adjust losses with a spirit of liberality and fairness, a natural result of which is to increase the business of these companies every year.

MONEY.—The first mint in the United States was put in operation in 1793, and from that time until 1857 the whole amount of gold coined was valued at $481,422,078 70; value of silver coinage, $107,527,917 53; value of copper coins, $1,662,823 55; making the valuation of the whole coinage $589,612,819 78. The whole number of pieces coined in this time was 623,640,499.

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FOURTEENTH YEAR

PROSPECTUS OF THE

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